Report on the St. Boniface General Hospital and Community Health Maternity Early Discharge Program Pilot Project

Manitoba Health

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REPORT ON THE ST. BONIFACE GENERAL HOSPITAL / COMMUNITY HEALTH MATERNITY EARLY DISCHARGE PROGRAM PILOT PROJECT

July, 1985

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* Member of the Steering Committee during the initial planning stages.

EXECUTIVE SUMMARY AND RECOMMENDATIONS

The Maternity Early Discharge Pilot Project, undertaken by St. Boniface General Hospital and Community Health Services Winnipeg Region, had three major impetuses to its development. First was the overall trend in the practise of obstetrics to discharge healthy women and their infants home after delivery, earlier than the five-day hospital stay established in the 1960's and 1970's. Another was the pressure on hospitals in Winnipeg to improve obstetrical bed utilization subsequent to consolidation of obstetric beds. The third was the concern expressed by physicians that infants and mothers were being discharged home without adequate supports in the community.

In view of these issues, a program to develop specialized postpartum nursing services in the community working closely with hospital staff was undertaken. Over the year, April 26, 1983 to April 30, 1984, St. Boniface Hospital, the City of Winnipeg Health Department, Manitoba Health Winnipeg Region, and Manitoba Health Services Commission collaborated on a project to provide community-based services to women who wish to leave hospital within three days of vaginal delivery or five days of a Caesarean section. A Steering Committee composed of representatives from each sector, and research support staff, directed the progress of the project.

The major results of the report and recommendations that evolve from the report of this project are:

Results:

1. Discharge of infants and mothers to the community within three days of a vaginal delivery and five days of a Caesarean section can be done safely and has proven to be acceptable to both patients and their families and to physicians. There were very few re-admissions of either infants or mothers and none occurred as a direct consequent of early discharge.

2. Early discharge after delivery and the community-based services developed in support of early discharge were considered satisfactory to 90% of the population served.

Recommendations:

1. Defined protocols and standards of care for service delivery in this program, agreed upon by hospital and community services, must be maintained.
2. Future planning for maternity care should take into consideration the trends towards shortening lengths of hospitalization. This requires provision of appropriate continuing education of those providing maternity care services.

3. Physicians and patients must be assured that community and hospital resources will provide a service that recognizes the needs of individual patients and provides an appropriate level of care. Therefore, professional and public promotion of such a program must be undertaken.

4. Eligible candidates for this program should be identified during pregnancy to the greatest extent possible and preparation for early discharge should be a part of prenatal classes and prenatal care.

5. Service delivery in such a program must be available seven days a week.

6. A phased-in province-wide expansion of the program should be undertaken as the appropriate resources for program support are put into place.

EVALUATION REPORT

ACKNOWLEDGEMENTS

Special recognition is due to the Working Group of the St. Boniface General Hospital Maternity Early Discharge Program Steering Committee for their efforts in designing and implementing the evaluation protocol and data collection instruments.

WORKING GROUP OF THE ST. BONIFACE GENERAL HOSPITAL MATERNITY EARLY DISCHARGE PROGRAM STEERING COMMITTEE

Joan Bickford	- Manitoba Health
Jennifer Clinch	- Manitoba Health Manitoba Health Services Commission
Carol Dyck	- Manitoba Health
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* Member of the Working Group during the initial planning stages.

As well as their invaluable work in providing services to mothers and babies on the Early Discharge Program, the Public Health Nurses collected a large amount of data for the evaluation. The remainder of the data collection was

carried out by the research assistant for the pilot project, Kathy Schellenberg, who also coded all the data for computer analysis.

All the key-punching and computer analyses of the data were performed by the Computer Department at St. Boniface General Hospital.

The evaluation report was written by Jennifer Clinch with editorial assistance from the Steering Committee, especially Carol Dyck.

Introduction

In June of 1982 St. Boniface Hospital submitted a proposal to the Manitoba Health Services Commission regarding perinatal home care. The first part of of the proposal was for an Early Discharge Program and arose out of a growing concern for improved nursing follow-up for mothers and babies who were already going home early after confinement. The second component concerned the home management of pregnancy-induced hypertension. Following approval of the proposal, a program to develop community based services for pregnant women and their families was undertaken.

Over the year April 26, 1983 to April 30, 1984 St. Boniface Hospital, the City of Winnipeg Health Department, Manitoba Health and the Manitoba Health Services Commission have collaborated on a project to permit women, who wish to leave hospital earlier than usual after confinement, an opportunity to receive specialized home nursing services. (The program for community-based management of pregnancy-induced hypertension was developed and implemented later and will be the subject of a subsequent report).

Public Health Nurses were selected for their combined expertise in the areas of community health and maternal and child nursing and then underwent a period of training at St. Boniface Hospital. They provided intensive nursing services to women who left hospital within three days of a vaginal delivery or within five days of cesarean section. These services included a physical and psychosocial assessment of the mother and baby plus teaching and demonstration regarding infant care, breast feeding, rest and exercise, nutrition and the like. If any problems were detected, appropriate

TABLE 1A

DESCRIPTION OF THE PROGRAM

A. Program Objectives

1. Allow extension of hospital nursing care into the home with necessary continuity in Maternal/Child care and patient education.
2. Provide an alternative to hospital care for those parents who wish to return early to the home environment and participate in their own health care to a greater extent than is now possible in hospital.
3. Reduce the cost of hospital postpartum care by reducing the length of patient stay.
4. Provide better utilization of hospital beds.
5. To enhance utilization of community resources by appropriate interdisciplinary referrals.

B. Staff

Staffing included one hospital-based nursing coordinator, Carol Dyck, who interviewed patients and gave referrals to six nurses who were visiting patients in the community. The nurses for the program were specially chosen for their combined expertise in community health and maternal/child nursing. They were all experienced people who had university preparation and some also held midwifery certificates and other additional preparation.

C. Visiting Schedule

Vaginal Deliveries - The originally proposed visiting schedule, for those mothers discharged up to three days post partum, was a visit of at least one hour in duration on the 1st and 3rd post-discharge day.
Cesarean Deliveries - For C/section mothers and babies who were discharged up to postpartum day five, visits were intended for the 1st, 3rd and 5th post-discharge day.

D. Services

These included physical and psychosocial assessment of mother and baby, teaching and demonstration regarding infant care, breast-feeding, rest and exercise, nutrition etc. The nurses were also prepared to remove sutures, collect samples for bilirubin testing, complete PKUs and give enemas, suppositories and other nursing interventions.

E. Referrals

The process of referral to the program was for the physician to assess each patient in light of the criteria and to refer to the program coordinator any mothers who were both suitable and willing to be discharged early. After the last home visit, the nurse completed a discharge summary which was returned to St. Boniface General Hospital and made available to physicians and nurses. In this way it was possible to monitor patients progress in the home care program.

TABLE 1

CRITERIA FOR ADMISSION TO THE PROGRAM

A. Time

Vaginal deliveries - up to and including discharges on postpartum day three if delivered after 1530 hours.

Cesarean deliveries - up to and including discharges on postpartum day five.

B. Physical

For Mother:

No hypertension, i.e. BP over 140/90
Temperature not higher than 38 degrees C
No abnormal vaginal bleeding or vaginal discharge
No uterine tenderness
Normal healing of incision (episiotomy or cesarean section)
No urinary difficulties - no proteinuria
- no glycosuria
No clinical evidence of Deep Vein Thrombosis

For Infant:

Birth weight 2500 gms. or more
Gestational age greater than 37 weeks
Apgar 7 or greater after 5 minutes
Vital signs: temperature 36.1-37.2 degrees C
respiration rate 20-60 per minute
heart rate 110-150 per minute
Hematocrit of .40-.65
Bilirubin level of less than 200 micromol/L
No abnormal voiding, stooling or feeding pattern

C. Psychosocial

Healthy acceptance of pregnancy and baby
Evidence of bonding
Supportive home environment
Willingness to be discharged early
In a position to make appropriate plans for discharge
Rooming in part of the hospital experience if appropriate or available

D. Geographical

For those women living in Winnipeg or staying in Winnipeg for a time period before returning to home in a rural area.

consultations occurred with or referrals were made to the attending physician. The Public Health Nurses were also prepared to remove sutures, collect samples for metabolic screening and bilirubin assessment of the baby, and to provide other nursing interventions. Any clients requiring ongoing services were referred to the district Public Health Nurse.

Women were referred to the program after being assessed by the physician in light of several criteria developed to ensure that the mother and baby were not at "high" risk for early discharge (see Table 1). Mothers were discharged early and received the Public Health Nurse follow-up after the hospital-based Public Health Nursing Coordinator had interviewed them and made sure that they understood the nature of the program. Only women currently living within the Perimeter Highway (the geographical boundary of the City of Winnipeg) were eligible for the program.

The project was subjected to a comprehensive evaluation which included assessment of the physical and social circumstances of the mother and baby, the mother's satisfaction with the program, and the physician's and nurse's response to the program.

Program and Evaluation Selection Criteria

A total of 613 women were included in the evaluation of this program, 499 of these after vaginal delivery and 114 after cesarean section. The numbers of these women discharged early each month represented from 19% to 43% of the total number of Winnipeg residents delivering at St. Boniface Hospital, with the overall average being 29% (see Table 2). Over the year another 254

TABLE 2

MONTHLY FIGURES FOR MATERNITY PATIENTS DISCHARGED EARLY, DAY 3 DISCHARGES OF PRE-15.30 DELIVERIES, TOTAL WINNIPEG RESIDENT DELIVERIES AND EARLY DISCHARGES AS A PERCENT OF WINNIPEG RESIDENT DELIVERIES.

	NUMBER OF EARLY DISCHARGES			DAY THREE DISCHARGES PRE-15.30 DELIVERIES	TOTAL WPG.RES. DELIVERIES	EARLY DISHARGES AS A % OF WPG.RES.**	
	VAGINAL DELIVERIES	CESAREAN DELIVERIES	FAILED CRITERIA*			WITHOUT PRE-15:30 DAY 3'S	WITH PRE-15:30 DAY 3'S
APRIL 26 - MAY 31	80	14	3V	51	326	29	44
JUNE	39	3	4V	30	209	20	34
JULY	50	11	2V 1C	38	208	29	48
AUGUST	31	7	1V 1C	15	89	43	60
SEPTEMBER	36	13	1C	26	143	34	52
OCTOBER	32	7	3V 1C	33	164	24	44
NOVEMBER	38	6	3V	15	133	33	44
DECEMBER	54	16	4V 1C	5	195	36	38
JANUARY	32	7	2V 2C	24	204	19	31
FEBRUARY	35	12	3V 1C	14	183	26	33
MARCH	57	17	2V	9	207	36	40
APRIL	53	13	4V 3C	4	200	33	35
TOTAL	537	126	31V 11C	254	2261	29	41

* The numbers in this column represent those mother and baby pairs that did not meet the criteria listed in Table 1 but where the mother or both mother and baby went home early.

V = Vaginal Delivery. C = Cesarean Section.

** Those who failed the criteria were not included in these percentages.

cases were discharged on day three (following vaginal delivery) and followed by a Public Health Nurse but these cases did not meet the time criterion for the evaluation of delivering after 1530 hours. When these 254 cases were included in the monthly percentages of Winnipeg resident deliveries discharged early, the figure varied from 31% to 60% with an overall average being 41%. Depending upon the actual time of discharge, some of the pre-1530 hour deliveries, who were discharged on day three may actually have spent fewer hours in hospital than some of those included in the evaluation. Therefore the figure of 41% may be taken as the best estimate of the upper limit on the percentage of the population delivering at St. Boniface Hospital who could be discharged "early".

Of those who met the time criterion, there were 42 mothers or mother/baby pairs who did not meet all of the criteria listed in Table 1. Most frequently this was because the baby died, was given up for adoption or did not go home with the mother - or because the mother and baby went home early against medical advice. These mothers or mother/baby pairs could not be included in the evaluation because they were not typical of those for whom the program was intended, however, they did receive the home visits from the Public Health Nurses. (When these 42 are subtracted from the total of Vaginal and Cesarean deliveries discharged early that appear in Table 2, the number remaining is 537+126-42=621, which is eight more than the number used in the evaluation. The discrepancy is due to failure to complete some forms sufficiently well for inclusion in the analysis.)

Length of Stay

The actual lengths of stay post-delivery for the eligible mother-baby pairs are shown in Table 3. Ninety-six percent of vaginal delivery cases were discharged on days two and three post-delivery and 97% of cesarean section cases were discharged on days four and five post-delivery. The average length of stay post-delivery was 2.4 days for vaginal deliveries and 4.6 days for cesarean section deliveries: the corresponding averages for all obstetric cases delivering at St. Boniface for the 1982/1983 year were 3.4 and 6.3 days respectively and for Winnipeg as a whole, 3.8 and 6.5 days respectively.

TABLE 3

LENGTH OF HOSPITAL STAY POST PARTUM

NUMBER OF DAYS	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
1	19 (3.8)	0
2	265 (53.1)	1 (0.9)
3	215 (43.1)	2 (1.8)
4	0	38 (33.3)
5	0	73 (64.0)

Sociodemographic Assessment

Information derived from the sociodemographic assessment appears in Tables 4 through 9. Table 4 shows the ages of the mothers: most were between 21 and 30 years old and the age distribution of those delivered by cesarean section was shifted towards the older age groups when compared to those who delivered vaginally.

TABLE 4

AGES OF MOTHERS

AGE GROUP	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
Under 20 years	28 (5.8)	6 (5.5)
21 - 25 years	168 (35.0)	36 (32.7)
26 - 30 years	203 (42.3)	43 (39.1)
31 - 35 years	65 (13.5)	20 (18.2)
Over 35 years	16 (3.3)	5 (4.5)
Age not recorded	19	4

TABLE 5

FREQUENCY (%) OF MOTHERS HAVING A SPECIFIC NUMBER OF PREVIOUS PREGNANCIES, TOTAL NUMBER OF CHILDREN AND NUMBER OF CHILDREN UNDER FIVE YEARS IN THE HOME

NUMBER	PREVIOUS PREGNANCIES		TOTAL NUMBER OF CHILDREN		NUMBER OF CHILDREN UNDER FIVE YEARS	
	VAGINAL DELIVERY	CESAREAN SECTION	VAGINAL DELIVERY	CESAREAN SECTION	VAGINAL DELIVERY	CESAREAN SECTION
0	183 (36.7)	43 (37.7)	-	-	-	-
1	179 (35.9)	45 (39.5)	218 (43.8)	56 (49.1)	259 (52.4)	68 (59.6)
2	93 (18.6)	18 (15.8)	194 (39.0)	46 (40.4)	192 (38.9)	41 (36.0)
3	32 (6.4)	4 (3.5)	66 (13.3)	11 (9.6)	40 (8.1)	4 (3.5)
4	6 (1.2)	4 (3.5)	16 (3.2)	1 (0.9)	2 (0.4)	1 (0.9)
5	2 (0.4)	-	3 (0.6)	-	1 (0.2)	-
6	2 (0.4)	-	1 (0.2)	-	-	-
7	-	-	-	-	-	-
8	1 (0.2)	-	-	-	-	-
9	1 (0.2)	-	-	-	-	-
Not Recorded	-	-	1	-	5	-

Table 5 shows that 44% of the vaginal delivery group and 49% of the cesarean section group did not have any other children at home other than the one just delivered. However only 37% of the vaginal delivery group and 38% of the cesarean section group had had no previous pregnancies (this discrepancy is presumably due to spontaneous or therapeutic abortions or adoption). Also,

48% of the vaginal delivery group and 40% of the cesarean section group had one or more children under five years old at home in addition to the new baby. Just over 80% of mothers in both groups were married and an additional smaller percentage of mothers in both groups were not married but were living with a partner giving a total of 92% of vaginal delivery and 96% of cesarean delivery mothers who were living with their husband or partner (see Table 6).

TABLE 6

MARITAL STATUS

MARITAL STATUS	LIVING WITH HUSBAND/PARTNER	VAGINAL DELIVERY FREQUENCY(%)	CESAREAN SECTION FREQUENCY(%)
Married	Yes	408 (81.8)	95 (83.3)
Married	No	3 (0.6)	0
Married	No answer	2 (0.4)	0
Single	Yes	30 (6.0)	6 (5.3)
Single	No	24 (4.8)	4 (3.5)
Single	No answer	1 (0.2)	0
Other	Yes	22 (4.4)	7 (6.1)
Other	No	8 (1.6)	1 (0.9)
No answer	Yes	1 (0.2)	1 (0.9)

TABLE 7

HELP IN HOME

DAYS PER WEEK	HOURS PER DAY	VAGINAL DELIVERY FREQUENCY(%)	CESAREAN SECTION FREQUENCY(%)
Every day	All day	268 (54.1)	68 (60.2)
Every day	Few hours	125 (25.3)	29 (25.7)
Every day	As needed	43 (8.7)	12 (10.6)
Some days	All day	9 (1.8)	0
Some days	Few hours	12 (2.4)	2 (1.8)
Some days	As needed	19 (3.8)	2 (1.8)
No answer	All day	2 (0.4)	0
No answer	Few hours	1 (0.2)	0
No answer	As needed	4 (0.8)	0
No help	---------	12 (2.4)	0

When assessing the home support syctems for these mothers it was noted that 97% of the vaginal delivery group and all the cesarean section group had help available in the home post partum, and in over half of the cases help was available all the time (see Table 7). In 95% of these cases this help was provided by the woman's husband or partner (if not married) or by some other relative (see Table 8).

TABLE 8

IDENTITY OF MAJOR POSTPARTUM HOME HELPER

HELPER	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
Husband/Partner	276 (59.5)	70 (64.2)
Other Relative	166 (35.8)	34 (31.2)
Hired Help	3 (0.6)	0
Friend	4 (0.9)	3 (2.8)
Other	3 (0.6)	2 (1.8)
No Help	12 (2.6)	0
No Answer	35	5

TABLE 9

DOMESTIC EVALUATION

	VAGINAL DELIVERY (N=485)		CESAREAN SECTION (N=111)	
EVALUATION	FREQUENCY	CUMULATIVE PERCENT	FREQUENCY	CUMULATIVE PERCENT
Very Adequate				
7	102	21.0	22	19.8
6	193	60.8	47	62.1
5	123	86.2	30	89.1
4	52	96.9	9	97.2
3	12	99.4	2	99.0
2	3	100.0	1	100.0
1	0	100.0	0	100.0
Very Inadequate				

The domestic evaluation undertaken by the Public Health Nurse was found to be adequate to very adequate in 97% of cases (see Table 9). The midpoint of the domestic evaluation scale was taken as indicating "adequate".

Public Health Nursing Care

Public Health Nurse visits were originally scheduled for days one and three after discharge for those who delivered vaginally and for days one, three and five for those who delivered by cesarean section. The actual percentages of mothers and babies who received one, two, three and four visits is shown in Table 10. Mothers and babies received more than the planned number of visits if they needed extra visits and less than the planned number if they did not need them (based on the assessment of the visiting Public Health Nurse). It can be seen that more than half of the cesarean section group received less than three visits. This was because it became apparent to the Public Health Nurses, as the program progressed, that most mothers who had cesarean deliveries did not need all three visits. The visits were planned to commence on the first day home after discharge with a second visit two days later. Eighty-nine percent of mothers and babies in both groups received their first visit on the day after discharge and less than 3% had their first visit delayed beyond the third day after discharge.

TABLE 10

NUMBER OF PUBLIC HEALTH NURSE VISITS

NUMBER OF VISITS	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
1	15 (3.0)	11 (9.6)
2	367 (73.5)	55 (48.2)
3	95 (19.0)	40 (35.1)
4	22 (4.4)	8 (7.0)

TABLE 11A

NUMBER OF MOTHERS HAVING SPECIFIC CONDITIONS CONCERNING WHICH THE PUBLIC HEALTH NURSE CONSULTED A PHYSICIAN

REASONS	VAGINAL DELIVERY (N=17)				CESAREAN SECTION (N=9)			
	1ST CONSULT		2ND CONSULT		1ST CONSULT		2ND CONSULT	
	Reason 1	Reason 2	Reason 1	Reason 2	Reason 1	Reason 2	Reason 1	Reason 2
Genitourinary:								
Episiotomy	5	1	-	-	-	-	-	-
Tender Uterus	1	-	-	-	-	-	-	-
Subinvolution	2	1	-	-	1	-	1	-
Abnormal vaginal discharge	-	-	-	-	1	1	-	-
Wound	1	-	-	-	2	-	-	-
Bladder	3	-	1	-	1	2	-	-
Dermatologic	2	1	-	-	-	-	-	-
Abnormal Vital Signs	2	-	-	-	3	-	-	-
Suspected Breast Infection	1	-	-	-	-	-	-	-
Eyes, Ears, Nose, Throat	-	-	-	-	1	-	-	-
Medical Care Requested	-	1	-	-	-	1	-	-
No second reason given	-	13	-	1	-	5	-	1
No second consult	-	-	16	16	-	-	8	8

(One mother in the C-section group had 3 consults - no reasons were given for the 3rd consult)

TABLE 11B

NUMBER OF INFANTS HAVING SPECIFIC CONDITIONS CONCERNING WHICH THE PUBLIC HEALTH NURSE CONSULTED A PHYSICIAN

REASONS	VAGINAL DELIVERY (N=39)				CESAREAN SECTION (N=4)			
	1ST CONSULT		2ND CONSULT		1ST CONSULT		2ND CONSULT	
	Reason 1	Reason 2	Reason 1	Reason 2	Reason 1	Reason 2	Reason 1	Reason 2
Endocrine/Metabolic:								
Hyperbilirubinemia*	25	1	6	-	4	-	-	-
Temperature Instability	2	-	-	-	-	-	-	-
Genitourinary	2	1	-	-	-	-	-	-
Cardiovascular	2	-	-	-	-	-	-	-
Suspected Infection: Local	2	1	-	-	-	-	-	-
Respiratory	-	1	-	-	-	-	-	-
Dermatologic	2	2	-	-	-	-	-	-
Central Nervous System:								
Abnormal Reflexes	-	1	-	-	-	-	-	-
Abnormal Vital Signs	1	-	-	-	-	-	-	-
Gastrointestinal:								
Feeding Difficulties	1	-	-	-	-	-	-	-
Diarrhea	-	1	-	-	-	-	-	-
Poor Weight Gain	-	1	-	-	-	-	-	-
Other	1	-	-	-	-	-	-	-
Other	1	-	-	-	-	-	-	-
Medical Care Requested	-	-	-	-	-	1	-	-
No Second Reason given	-	30	-	6	-	3	-	-
No second consult	-	-	33	33	-	-	4	4

* Hyperbilirubinemia is defined as abnormally large amounts of bilirubin in the circulating blood resulting in clinically apparent jaundice when the concentration is sufficient.

TABLE 12A

NUMBER OF MOTHERS SHOWING SPECIFIC CONDITIONS FOR WHICH THE PUBLIC HEALTH NURSE REFERRED THEM TO A PHYSICIAN

	VAGINAL DELIVERY (N=29)		CESAREAN SECTION (N=9)	
REASONS	Reason 1	Reason 2	Reason 1	Reason 2
Genitourinary:				
Episiotomy	7	-	-	-
Wound	-	-	2	1
Subinvolution	1	-	1	1
Bladder	4	-	2	-
Suspected Breast Infection	3	-	-	-
Cardiovascular	3	-	-	1
Gastrointestinal	3	-	1	-
Dermatologic	2	1	-	-
Visit required by Physician	2	2	1	-
Medical Care Requested	1	6	1	2
Abnormal Vital Signs	1	-	1	-
Post-natal depression	1	1	-	-
No Second Reason	-	18	-	5
No reasons given	1	1	-	-

One vaginal delivery mother had two referrals - the reason for the 2nd referral was post-natal depression.

During the course of the Public Health Nurse visits, some patients' physicians were consulted by the nurse if problems arose and some patients were referred to their physicians by the nurse if this became necessary. In the vaginal delivery group the nurse consulted the physician for 3.4% of mothers and 7.8% of infants, and referred 5.8% of the mothers and 9% of the infants to their physician. In the cesarean delivery group the physician was consulted for 7.8% of mothers and 3.5% of infants, and 7.8% of mothers and 4.4% of infants were referred to their physicians. As may have been expected, some of the referrals and consultations were for the same individuals: the overlap was for 0.8% of mothers and 2.6% of infants who

TABLE 12B

NUMBER OF INFANTS SHOWING SPECIFIC CONDITIONS FOR WHICH THE PUBLIC HEALTH NURSE REFERRED THEM TO A PHYSICIAN

	VAGINAL DELIVERY (N=45)		CESAREAN SECTION (N=5)	
REASONS	Reason 1	Reason 2	Reason 1	Reason 2
Endocrine/Metabolic:				
Hyperbilirubinemia	13	-	2	-
Metabolic Screening	2	-	-	-
Temperature Instablity	1	1	-	-
Suspected Infection:				
Local	6	2	-	-
Systemic	1	-	1	-
Eyes, Ears, Nose and Throat	5	1	1	-
Genitourinary	4	3	-	-
Dermatologic	-	4	-	-
Gastrointestinal:				
Feeding Difficulties	3	1	-	-
Diarrhea	1	1	-	-
Excessive Vomiting	1	-	-	-
Other	2	-	-	-
Musculoskeletal	2	-	-	-
Respiratory	2	-	-	-
Visit Required by M.D.	2	8	1	-
Medical Care Requested	-	5	-	1
No Second Reason	-	19	-	4

One vaginal delivery infant had two referrals - the reason for second referral was hyperbilirubinemia.

were delivered vaginally, and for 3.5% of mothers and 1.8% of infants who were delivered by cesarean section. The reasons for the consultations and referrals are shown in Tables 11A and 11B, and 12A and 12B respectively. Clearly, hyperbilirubinemia was the most frequent cause for concern amongst the infants and problems with episiotomy healing amongst the vaginally delivered mothers. The number of mothers in the cesarean section group whose physicians were involved by the Public Health Nurse was so small that a single largest problem did not emerge.

Hospital Readmissions

The Manitoba Health Services Commission provided data on the number of mothers and babies who were readmitted to hospital within fourteen days after delivery. Table 13A summarizes the findings. Of the six mothers who were readmitted to hospital, two were readmitted for reasons that had nothing to do with recent childbirth (cases 5 and 6), but the remaining four (cases 1 to 4) were readmitted for reasons listed as postpartum conditions and had an uneventful recovery. These four represent less than 1% of all those followed. Their charts have been reviewed and it was the opinion of the reviewing physician that the problems for which these mothers were readmit- ted were not the result of early discharge and it was even questionable that some of the conditions were obstetrically related. Half of these mothers were readmitted with their babies: case 4 was readmitted with a sick infant and cases 2 and 3 each with a healthy infant.

TABLE 13A

HOSPITAL READMISSIONS OF MOTHERS

CASE	REASON FOR READMISSION	POSTPARTUM DAY OF READMISSION	LENGTH OF STAY POST PARTUM	LENGTH OF STAY ON READMISSION
1	Endometritis (SVD)*	4	2	3
2	Chest Pain (C/S)*	14	4	1
3	Disruption of Episiotomy and/or laceration (SVD)	7	3	2
4	Major puerperal infection (SVD)	10	3	3
5	Cholecystectomy (SVD)	10	2	12
6	Mastotomy for inflammatory disease of breast (SVD)	12	3	5

* SVD = Spontaneous Vaginal Delivery; C/S = Cesarean Section

TABLE 13B

HOSPITAL READMISSIONS OF INFANTS

CASE	REASON FOR READMISSION	POSTPARTUM DAY OF READMISSION	LENGTH OF STAY POST PARTUM	LENGTH OF STAY ON READMISSION
1.	Diarrhea and vomiting due to milk allergy (SVD)*	12	3	3
2.	Hyperbilirubinemia (SVD)	3	2	3
3.	Hyperbilirubinemia (SVD)	3	1	3
4.	Hyperbilirubinemia (SVD)	5	3	2
5.	Hyperbilirubinemia (SVD)	5	3	3
6.	Hyperbilirubinemia (Forceps)	6	3	8
7.	Hyperbilirubinemia (C/S)*	9	5	2
8.	Fever - diarrhea (Forceps)	4	3	3
9.	Suspected infection - diarrhea (SVD)	6	3	1
10.	Infected circumcision (SVD)	4	3	3
11.	Feeding difficulties (SVD)	3	3	2
12.	Streptococcal pneumonia (SVD)	7	2	10
13.	Conjunctivitis - acute upper respiratory infection (mother also readmitted - (SVD)	10	3	3
14.	Normal - readmitted with sick mother (C/S)	14	4	1
15.	Normal - readmitted with sick mother (SVD)	7	3	2

* SVD = Spontaneous Vaginal Delivery
C/S = Cesarean Section

Of the fifteen babies readmitted (approximately 2% of the total), two were well but were readmitted with their sick mothers and thirteen required treatment - six for neonatal jaundice and the remainder for an assortment of infections and gastrointestinal problems (see Table 13B). These are common neonatal problems and all recovered uneventfully. Again, it is the opinion of the St. Boniface Hospital Obstetric Department that these problems might have occurred with or without early discharge.

Medical Synopsis - Mother and Baby

The variables recorded in the mother's medical synopsis were prenatal risk score (at delivery), whether or not the infant was carried to term, delivery type, type of anesthesia used, duration of labour, whether or not an episiotomy was performed, degree of laceration, hemoglobin levels, rhesus status, whether or not Win RHo (anti- RH antibodies) was given and if not why not (for RH negative mothers), and finally the reason for any delivery by cesarean section. The prenatal risk scores are shown in Table 14.

TABLE 14

PRENATAL RISK SCORE

RISK SCORE	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
0	125 (25.1)	2 (1.8)
1	175 (35.1)	22 (19.3)
2	84 (16.8)	29 (25.4)
3	70 (14.0)	21 (18.4)
4	24 (4.8)	22 (19.3)
5	11 (2.2)	6 (5.3)
6	3 (0.6)	4 (3.5)
7	6 (1.2)	4 (3.5)
8	1 (0.2)	1 (0.9)
9	0	1 (0.9)
10	0	2 (1.8)

When low risk is defined as a score of 0-2, high risk as a score of 3-6 and extreme risk as a score of 7-10, the distribution of risk scores is shifted toward the lower end of the scale for this group of mothers compared to the group of all Winnipeg resident mothers delivering at St. Boniface in the 1982/83 year (see Table 15). This difference is significant for both the vaginal and cesarean delivery groups ($\chi^2 = 26.0$, $p < .001$ and $\chi^2 = 26.2$, $p < .001$ for the vaginal and cesarean delivery groups respectively). This was to be expected given that the program was designed specifically for "low risk" mothers and babies.

TABLE 15

GROUPED PRENATAL RISK SCORE BY DELIVERY TYPE FOR THE PILOT GROUP AND TOTAL WINNIPEG RESIDENT 1982/1983 ST. BONIFACE DELIVERIES (PERCENT)

RISK SCORE	VAGINAL DELIVERY		CESAREAN SECTION	
	PILOT (N=499)	82/83 (N=2068)	PILOT (N=114)	82/83 (N=404)
Low	77.0	66.3	46.5	25.9
High	21.6	30.6	46.5	59.1
Extreme	1.4	3.0	7.0	14.8
	100	100	100	100

Since it could be argued that the reduced length of stay of pilot project mothers and babies was entirely due to this difference in risk score distribution, the expected average length of stay was computed for the pilot group based on figures available for length of stay in each of the six combinations of risk score group and delivery type in Winnipeg resident mothers for the 1982/83 year. The figure obtained was 3.7 days which is only

slightly lower than the overall 1982/83 average for Winnipeg resident St. Boniface deliveries of 3.9 days. The smallness of this difference is due to there being a greater percentage of cesarean deliveries in the pilot group than in the total Winnipeg resident deliveries at St. Boniface during 1982/83, however the latter difference was not statistically significant.

The vaginal deliveries comprised 81.4% of the total number evaluated. Of these 81% were spontaneous vaginal deliveries, 17.8% were forceps deliveries and 1.2% were breech deliveries. An episiotomy was performed on 78.4% of the vaginally delivered mothers and 25.5% of them experienced lacerations, the degrees of which are recorded in Table 16A.

TABLE 16A

DEGREE OF LACERATION

DEGREE OF LACERATION*	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
None	371 (74.5)	114 (100)
First	32 (6.4)	0
Second	56 (11.2)	0
Third	32 (6.4)	0
Fourth	7 (1.4)	0

* Obstetrical lacerations vary from first degree, which involves tearing of the vaginal mucous membrane and the skin of the anterior margin of the perineum only, to fourth degree, which involves, additionally, tearing of the skin and muscle of the perineal body, the rectal sphincter and the anterior wall of the rectum. Second and third degree tears are of intermediate severity.

The rather high percentage of patients experiencing third and fourth degree lacerations was considered cause for concern and therefore the relationship

between degree of laceration and whether or not the patient received an episiotomy was investigated (see table 16B). As can be seen, all patients who experienced the most severe lacerations had had an episiotomy. In house investigations are in process at St. Boniface Hospital in order to determine possible causes of this problem with the aim of changing procedure so as to avoid its occurrence in the future.

TABLE 16B

PERCENTAGE OF PATIENTS EXPERIENCING A GIVEN DEGREE OF LACERATION BY WHETHER OR NOT AN EPISIOTOMY WAS PERFORMED (N=489)

	DEGREE OF LACERATION				
EPISIOTOMY	NONE	FIRST	SECOND	THIRD & FOURTH	N
YES	89.5	12.9	25.0	100.0	383
NO	10.5	67.1	75.0	0.0	106
N	370	31	50	38	

The type of anesthesia used, the duration of labour and postpartum hemoglobin levels are shown in Tables 17, 18 and 19 respectively.

TABLE 17

TYPE OF ANESTHESIA USED

ANESTHESIA	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
Nil	332 (66.5)	0
Epidural Block	164 (32.9)	106 (93.0)
Pudendal Block	2 (0.4)	0
General	1 (0.2)	8 (7.0)

TABLE 18

DURATION OF LABOUR

DURATION OF LABOUR	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
No labour	0	55 (48.2)
1 - 5 hours	169 (33.9)	6 (5.3)
6 - 10 hours	170 (34.1)	13 (11.4)
11 - 15 hours	98 (19.7)	17 (14.9)
16 - 20 hours	34 (6.8)	7 (6.1)
Over 20 hours	27 (5.4)	19 (16.7)

TABLE 19

HEMOGLOBIN LEVELS

HEMOGLOBIN MGMS PERCENT	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
001 - 099	14 (3.0)	11 (9.6)
100 - 120	165 (35.2)	54 (47.4)
Over 120	290 (61.8)	49 (43.0)

Fourteen percent of the mothers were Rh-, there being no significant difference between delivery types. However there was a difference in the proportion of these Rh- mothers in each delivery group who were not given Win Rho after delivery because their babies were also Rh-: a smaller percentage of vaginally delivered Rh- mothers had Rh- babies, and were therefore <u>not</u> given Win Rho, than the percentage in the cesarean section group. Of the 72 Rh- vaginal delivery mothers only 37.5% had Rh- babies, whereas 64.3% of the 14 Rh- cesarean delivery mothers had Rh- babies (this difference was not significant).

Cesarean sections were performed on 18.6% of the total number of deliveries evaluated. The reasons for this method of delivery are shown in Table 20.

TABLE 20

REASONS FOR CESAREAN SECTION

REASON	1ST REASON FREQUENCY	2ND REASON FREQUENCY	3RD REASON FREQUENCY	TOTAL FREQUENCY(%)
Failure to progress	33	15	0	48 (42.1)
Elective/repeat	52	19	2	73 (64.0)
Malpresentation	14	9	0	23 (20.2)
Fetal distress	8	0	0	8 (7.0)
Trial of labour	5	3	1	9 (7.9)
Repeat in labour	1	0	0	1 (0.9)
Placenta previa	1	1	0	2 (1.8)
Failed induction	0	1	0	1 (0.9)
Other	0	0	2	2 (1.8)

Information collected on the infants while still in hospital included sex, birth and discharge weights, Apgar scores at one and five minutes after birth, PKU screening information and a general pediatric assessment. As may have been expected 50.1% of the infants were male and 49.9% were female. Their birth and discharge weights are shown in Table 21 and show the usual shift towards a lower average weight at discharge compared to that at birth. Also the babies delivered by cesarean section had a slightly higher average birth weight than the vaginally delivered babies, which carried over into a higher discharge weight. Seven (1.4%) of the vaginal deliveries and three (2.6%) of the cesarean sections were classified as preterm.

TABLE 21

BIRTH AND DISCHARGE WEIGHTS

	VAGINAL DELIVERY		CESAREAN SECTION	
WEIGHT (GRAMS)	BIRTH WEIGHT FREQUENCY(%)	DISCHARGE WEIGHT FREQUENCY(%)	BIRTH WEIGHT FREQUENCY(%)	DISCHARGE WEIGHT FREQUENCY(%)
2001 - 2500	2 (0.4)	6 (1.2)	1 (0.9)	1 (0.9)
2501 - 3000	78 (15.7)	123 (24.6)	10 (8.8)	25 (21.9)
3001 - 3500	205 (41.2)	215 (43.1)	49 (43.0)	44 (38.6)
3501 - 4000	166 (33.3)	131 (26.3)	33 (28.9)	32 (28.1)
4001 - 4500	43 (8.6)	23 (4.6)	16 (14.0)	8 (7.0)
4501 - 5000	4 (0.8)	1 (0.2)	5 (4.4)	4 (3.5)
Mean Weight	3433	3302	3548	3394

The babies' Apgar scores at one and five minutes after birth are shown in Table 22 which indicates that the cesarean delivery babies had slightly lower average scores at both one and five minutes after birth.

TABLE 22

APGAR SCORES AT ONE AND FIVE MINUTES AFTER BIRTH

	VAGINAL DELIVERY FREQUENCY (%)		CESAREAN SECTION FREQUENCY (%)	
APGAR SCORE	ONE MINUTE	FIVE MINUTES	ONE MINUTE	FIVE MINUTES
2	4 (0.8)	0	0	0
3	7 (1.4)	0	2 (1.8)	0
4	11 (2.2)	0	2 (1.8)	0
5	16 (3.2)	0	6 (5.3)	0
6	26 (5.2)	0	5 (4.4)	0
7	41 (8.2)	10 (2.0)	15 (13.2)	1 (0.9)
8	162 (32.5)	41 (8.2)	46 (40.4)	11 (9.6)
9	226 (45.4)	375 (75.3)	38 (33.3)	99 (86.8)
10	5 (1.0)	72 (14.5)	0	3 (2.6)
Mean Score	7.984	9.022	7.798	8.912

Metabolic disease screening, which includes screening for Phenylketonuria (PKU) is always performed in hospital before babies are discharged, usually on postpartum day four. However PKU may not be detected if screening takes place earlier than postpartum day three. Therefore duplicate screening by the Public Health Nurses was planned for those babies who were discharged on postpartum days one and two. According to the data 46% of the mother-baby pairs were discharged on postpartum day one or two but only 40% of the babies received the repeat screening by the Public Health Nurse. It is known that a number of the babies were screened again at their physician's office during appointments that took place at the time that the screening would have been done by the Public Health Nurse. Also two babies' screening was repeated when they were readmitted to hospital. Unfortunately the forms used for data collection in the pilot project were set up so that only those tests done by the Public Health Nurse were checked off, thus the other sources of repeat screening cannot be substantiated.

Pediatric assessment of the babies prior to discharge resulted in 92% being diagnosed as normal while the two largest abnormal diagnoses were musculo-skeletal and local congenital abnormalities (see Table 23). Hyperbilirubin-emia was diagnosed in 0.2% of the vaginal deliveries and 2.6% of the cesarean deliveries: the higher figure for the latter group was probably due to the longer period spent in hospital which allowed the condition time to develop and be diagnosed before discharge. This interpretation is confirmed by the number of blood bilirubin measurements done at home by the Public Health Nurses. Bilirubin levels were measured in only four percent of the cesarean delivery babies whilst twice this percentage of the vaginal delivery babies were assessed in the home (a total of 43 babies).

TABLE 23

NUMBERS OF INFANTS SHOWING SPECIFIC CONDITIONS
UPON PEDIATRIC ASSESSMENT PRIOR TO DISCHARGE

DIAGNOSIS	VAGINAL DELIVERY FREQUENY (%)			CESAREAN SECTION FREQUENCY (%)		
	FIRST	SECOND	TOTAL(%)	FIRST	SECOND	TOTAL(%)
Normal	461	-	461 (92.8)	103	-	103 (90.4)
Musculoskeletal	16	2	18 (3.6)	5	2	7 (6.1)
Endocrine/Metabolic:						
Temperature Instability	1	-	1 (0.2)	-	-	-
Hyperbilirubinemia	1	-	1 (0.2)	3	-	3 (2.6)
Other	4	-	4 (0.8)	2	-	2 (1.9)
Congential Abnormalities: Local	4	13	17 (3.4)	1	4	5 (4.4)
Dermatologic	3	2	5 (1.0)	-	-	-
Cardiovascular	2	-	2 (0.4)	-	-	-
Abnormal Vital Signs	1	-	1 (0.2)	-	-	-
Suspected Infection: Local	1	-	1 (0.2)	-	-	-
Remained in Hospital: Medical Problems	1	-	1 (0.2)	-	-	-
Respiratory	1	1	2 (0.4)	-	-	-
Eyes, Ears, Nose, Throat	-	1	1 (0.2)	-	-	-
Genitourinary	1	1	2 (0.4)	-	-	-
Not Coded	2	2	-	-	-	-
No Second Code	-	477	-	-	108	-

Program Information Sources for Mothers

Table 24 shows that the method of introduction of mothers to the program was most frequently via interaction with hospital staff or Public Health nurses (81% of those on whom data was available): physicians were responsible for suggesting early discharge to the mother in a much smaller percentage of cases (13%). As was mentioned by some of the nurses and doctors involved with the progam, prenatal classes would be the ideal vehicle for the introduction to the idea of early discharge and could also provide instruction necessary to ensure a successful experience for the mother and baby. However, not all of the mothers attended prenatal classes for this particular pregnancy, especially if they had been pregnant previously.

TABLE 24

SOURCE OF INFORMATION REGARDING PROGRAM

SOURCE	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
Physician	62 (14.0)	11 (11.1)
Nurse*	356 (80.5)	83 (83.8)
Friend	1 (0.2)	1 (1.0)
Other	23 (5.2)	4 (4.0)
None given	57	15

* Could be hospital or Public Health Nurse, prenatal instructor etc.

Forty-five percent of the cesarean delivery and 37% of the vaginal delivery mothers attended prenatal classes for this most recent pregnancy and attendance was significantly related to number of previous pregnancies in both groups; attendance became progressively less likely with increasing number of previous pregnancies, (see Table 25).

TABLE 25

RELATIONSHIP BETWEEN ATTENDANCE AT PRENATAL CLASSES AND NUMBER OF PREVIOUS PREGNANCIES

VAGINAL DELIVERY (N = 483)

	NUMBER OF PREVIOUS PREGNANCIES			
	NONE	ONE	TWO	THREE OR MORE
ATTENDED CLASSES	74.0%	21.3%	7.9%	11.6%
NO CLASSES	26.0%	78.7%	92.1%	88.4%
	100%	100%	100%	100%

(χ^2 = 166.3; df = 3; p < 0.00005)

CESAREAN SECTION (N = 110)

	NUMBER OF PREVIOUS PREGNANCIES			
	NONE	ONE	TWO	THREE OR MORE
ATTENDED CLASSES	72.1%	35.7%	17.6%	12.5%
NO CLASSES	27.9%	64.3%	82.4%	87.5%
	100%	100%	100%	100%

(χ^2 = 22.7; df = 3; p < 0.00005)

Breast-Feeding

Easier establishment of breast feeding was one of the potential advantages of early discharge voiced by involved nurses and physicians. Seventy-five percent of the mothers were breast feeding during their hospital stay and the Public Health Nurses recorded that 70% of the total continued to do so after discharge, at least until the end of the Public Health Nurse visits.

Table 26A shows these figures for both delivery groups and also indicates the number who had started breast feeding but had stopped later, either in hospital or at home. Reasons for stopping are shown in Table 26B. Unfortunately, no control group was used in this study and therefore it is not possible to determine what percentage of these mothers might have continued to breast feed after returning home if they had not been discharged early.

TABLE 26A

BREAST FEEDING STATUS

STATUS IN HOSPITAL	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
Breast Feeding	377 (75.6)	85 (74.6)
Bottle Feeding	115 (23.0)	26 (22.8)
Both	7 (1.4)	3 (2.6)
STATUS AT HOME		
Breast Feeding	345 (70.3)	79 (69.9)
Stopped Breast Feeding:		
In Hospital	9 (1.8)	3 (2.6)
At Home	22 (4.5)	5 (4.4)
Originally Bottle Feeding	115 (23.4)	26 (23.0)
Unknown	8	1

TABLE 26B

REASONS FOR STOPPING BREAST FEEDING

REASONS	VAGINAL DELIVERY FREQUENCY (%)	CESAREAN SECTION FREQUENCY (%)
Too tired	7 (25.0)	-
Not enough milk	5 (17.9)	4 (80.0)
Sore nipples	3 (10.7)	1 (20.0)
Not aesthetically pleasing	2 (7.1)	-
Too time consuming	1 (3.6)	-
Returning to work	1 (3.6)	-
Cannot measure baby's intake	1 (3.6)	-
Other	8 (28.6)	-
Unknown	3	3

However, the 70% of infants who were still being breast-fed at the end of the home visits compares favourably with available figures which indicate that 66% of Winnipeg infants born during the first week of December, 1979 were breast-fed on discharge from hospital (Committee on Breast-Feeding, Manitoba Pediatric Society, 1982).

TABLE 27

RELATIONSHIP BETWEEN AGE GROUP AND BREAST-FEEDING STATUS IN HOSPITAL

VAGINAL DELIVERY (N = 492)

	LESS THAN 20 YEARS	21 - 25 YEARS	26 - 30 YEARS	OVER 30 YEARS
BREAST-FEEDING	50.0%	77.4%	83.1%	80.2%
NOT BREAST-FEEDING	50.0%	22.6%	18.7%	19.8%
	100%	100%	100%	100%

($\chi^2 = 14.3$; df = 3; $p < 0.005$)

CESAREAN SECTION (N = 110)

	LESS THAN 20 YEARS	21 - 25 YEARS	26 - 30 YEARS	OVER 30 YEARS
BREAST-FEEDING	100%	83.3%	74.4%	68.0%
NOT BREAST-FEEDING	0.0%	16.7%	25.6%	32.0%
	100%	100%	100%	100%

($\chi^2 = 3.2$; df = 2 ; NS)*

* For calculation of this χ^2 those under 25 were grouped together because there were only 6 mothers under 20.

Relationships between whether or not the mother was breast-feeding her baby and the variables in the sociodemographic assessment were explored. Age was significantly related to breast-feeding for vaginal but not for cesarean deliveries: there was an increasing likelihood of breast-feeding with increasing age group up to age 35 but after age 35 the probability declined. The opposite of this pattern was seen in the cesarean delivery group (see Table 27).

Marital status was also related to incidence of breast feeding in the vaginal delivery group only: those who were married and living with their husband had the highest incidence, those not married but living with a partner the next highest and those who were not living with their husband or partner had the lowest incidence of breast-feeding. This relationship is shown in Table 28. All marital status groups showed approximately the same incidence of breast-feeding in those who had cesarean deliveries.

TABLE 28

RELATIONSHIP BETWEEN MARITAL STATUS AND BREAST-FEEDING STATUS IN HOSPITAL FOR VAGINAL DELIVERY MOTHERS (N=492)

	MARRIED LIVING WITH HUSBAND	NOT MARRIED LIVING WITH PARTNER	NOT MARRIED NOT LIVING WITH PARTNER
BREAST-FEEDING	79.4%	69.2%	53.1%
NOT BREAST-FEEDING	20.6%	30.8%	46.9%
	100%	100%	100%

($\chi^2 = 13.2$; $p < 0.005$)

TABLE 29

RELATIONSHIP BETWEEN DOMESTIC EVALUATION SCORE AND BREAST-FEEDING STATUS IN HOSPITAL

VAGINAL DELIVERY (N = 485)

	DOMESTIC EVALUATION SCORE				
	3 OR LESS	4	5	6	7
BREAST-FEEDING	73.3%	61.5%	70.7%	82.9%	84.3%
NOT BREAST-FEEDING	26.7%	38.5%	29.3%	17.1%	15.7%
	100%	100%	100%	100%	100%

($\chi^2 = 16.9$, $p = 0.002$)

CESAREAN SECTION (N = 111)

	DOMESTIC EVALUATION SCORE				
	3 OR LESS	4	5	6	7
BREAST-FEEDING	66.7%	100%	63.3%	83.0%	72.7%
NOT BREAST-FEEDING	33.3%	0%	36.7%	17.0%	27.3%
	100%	100%	100%	100%	100%

($\chi^2 = 1.9$; df = 2; $p = 0.002$)*

* For calculation of this χ^2 those mothers having domestic evaluation scores of 5 or less were grouped together because the numbers in the first 3 columns were so small.

Amongst the vaginal deliveries there was a greater probability of breast-feeding in those mothers with nine years or more education as compared to those having less education. The likelihood that a mother with less than nine years education would breast-feed was .524 whereas the figure for mothers with higher levels of education was .791: This difference was statistically significant ($\chi^2 = 6.8$, $p = 0.009$). Probabilities for the cesarean section mothers were .600 for the lesser and .768 for the greater number of years of education, but the number of mothers in this group who had less education was so small that χ^2 could not be calculated.

Breast-feeding and domestic evaluation score were related in the vaginal delivery group only, as is shown in Table 29. The proportion breast-feeding was highest for the highest domestic evaluation score and dropped consistently towards the mid-point of the scale but then increased again for those scoring at the lower end of the scale. The trend in the cesarean delivery group was erratic and non-significant, probably because of the smaller numbers. The remaining variables in the sociodemographic assessment were not related to breast-feeding status.

Patient Satisfaction

All mothers referred to the program during the period September 15, 1983 to January 15, 1984 were asked to complete questionnaires to indicate their level of satisfaction with the program. The 169 mothers who completed questionnaires and who were eligible for the evaluation were divided into three groups: Groups A and B were both interviewed by the Nurse Interviewer/Research Assistant, two days after the last Public Health Nurse visit

for Group A and seven to ten days after for Group B, while those in group C were given a questionnaire by the Public Health Nurse on the day of the last visit and were instructed to complete it and mail it back immediately.

An overall satisfaction item appeared first on the questionnaire and the responses are shown in Table 30. Mothers were asked to "rate on this scale your satisfaction with going home from hospital under this program" and if a scale point of four is taken as indicating "satisfied" then over 90% in both delivery groups were satisfied to very satisfied with the program. There was no difference in satisfaction expressed by the three groups A, B and C.

TABLE 30

OVERALL SATISFACTION WITH GOING HOME FROM HOSPITAL UNDER THE PROGRAM

	VAGINAL DELIVERY (N=134)		CESAREAN SECTION (N=35)	
EVALUATION	FREQUENCY	CUMULATIVE (PERCENT)	FREQUENCY	CUMULATIVE (PERCENT)
Very Satisfied				
7	82	63.6	23	65.7
6	15	75.2	6	82.3
5	18	89.1	2	88.5
4	3	91.5	2	94.2
3	3	93.8	1	97.1
2	2	95.3	1	100.0
1	6	100.0	0	100.0
Very Unsatisfied				
No answer	5		-	

Eighty-seven percent of the mothers indicated that they would consider using the program again for future pregnancies. Those that said they would not use the program again were asked why not and their responses appear in Table

TABLE 31

NUMBER OF MOTHERS GIVING SPECIFIC REASONS
FOR NOT CONSIDERING FUTURE USE OF THE EARLY DISCHARGE PROGRAM

REASON	VAGINAL DELIVERY	CESAREAN SECTION	TOTAL
Hospital stay too short	5	0	5
Could not rest at home	2	0	2
Difficulty caring for other children	6	1	7
Physically uncomfortable at discharge	2	0	2
No more children planned	2	1	3
Hospital care preferred	0	1	1
Program not helpful	0	1	1
Other	0	1	1

31. Some of these reasons coincide with the disadvantages of early discharge given by the nurses and physicians involved in the program, however, it is important to remember that only 11% of mothers would not use the program again (when those who planned no further children are excluded).

Mothers were asked to rate their satisfaction with the numbers of Public Health Nurse visits that they received. Over 90% in both delivery groups were satisfied to very satisfied with the number they received.

Satisfaction with various aspects of the Public Health Nursing care, including teaching, were assessed separately. Cumulative percentages of mothers responding with each level of satisfaction - working from very satisfied on downwards - are shown in Table 32. For most of the categories there were fewer responses at scale point seven in the vaginal delivery group but the cumulative percentages became approximately equal at the scale point of

TABLE 32

SATISFACTION WITH PUBLIC HEALTH NURSING CARE:
FREQUENCY (AND CUMULATIVE PERCENT) OF MOTHERS GIVING EACH RATING

ASPECTS OF CARE	DELIVERY TYPE	RATING SCALE SCORE							N
		7	6	5	4	3	2	1	
		Very Satisfied						Very Dissatisfied	
Instructions/information re. breast/bottle feeding	Vaginal Delivery	58.5	78.0	91.1	97.6	99.2	99.2	100.0	123
	Cesarean Section	57.6	72.7	90.9	100.0	100.0	100.0	100.0	33
Care/examination of baby	Vaginal Delivery	65.9	86.4	95.5	97.0	99.2	100.0	100.0	132
	Cesarean Section	80.0	91.4	94.3	94.3	94.3	97.1	100.0	35
Instruction/information re. infant care	Vaginal Delivery	56.9	81.3	91.9	95.9	98.4	100.0	100.0	123
	Cesarean Section	54.8	71.0	90.3	96.8	96.8	96.8	100.0	31
Information re. resumption of sexual activity and family planning	Vaginal Delivery	48.5	68.9	77.7	88.3	90.3	93.2	100.0	103
	Cesarean Section	65.4	73.1	92.3	96.2	96.2	100.0	100.0	26
Care/examination of self	Vaginal Delivery	71.4	91.7	97.7	97.7	98.5	99.2	100.0	133
	Cesarean Section	80.0	88.6	94.3	97.1	97.1	100.0	100.0	35
Information re. own condition and caring for self	Vaginal Delivery	68.5	89.0	96.9	98.4	99.2	100.0	100.0	127
	Cesarean Section	74.2	83.9	93.5	96.8	96.8	100.0	100.0	31
Information/instructions re. rest and activity	Vaginal Delivery	60.3	79.4	90.5	94.4	98.4	100.0	100.0	126
	Cesarean Section	68.6	82.9	91.4	97.1	97.1	97.1	100.0	35
Information re. emotional changes postpartum	Vaginal Delivery	50.0	63.6	74.6	87.3	93.2	93.2	100.0	118
	Cesarean Section	57.6	69.7	75.8	84.8	90.9	93.9	100.0	33
Information/instructions re. follow-up care	Vaginal Delivery	66.9	85.7	94.0	98.5	98.5	99.2	100.0	133
	Cesarean Section	77.1	94.3	97.1	100.0	100.0	100.0	100.0	35

five. The only exception to this general rule was the sensitive area of instruction regarding resumption of sexual activity and family planning, which had the lowest satisfaction ratings of any of the aspects of care and also showed the greatest difference between the two delivery type groups throughout the rating scale. An average score across all aspects of care was calculated for each mother excluding any items to which there was no response. These scores were then grouped so as to reflect the original satisfaction rating scale points and are reported in Table 33. These average scores confirm the observation above, that the cesarean delivery group showed a higher overall satisfaction with home nursing care.

TABLE 33

AVERAGE SATISFACTION SCORE ON ITEMS OF PUBLIC HEALTH NURSING CARE - FREQUENCY AND CUMULATIVE PERCENT OF MOTHERS IN EACH SCORE RANGE

	VAGINAL DELIVERY		CESAREAN SECTION	
AVERAGE SCORE RANGE	FREQUENCY	CUMULATIVE PERCENT	FREQUENCY	CUMULATIVE PERCENT
6 - 7	95	70.9	26	74.3
5 - 5.9	28	91.8	8	97.2
4 - 4.9	9	98.6	0	97.2
3 - 3.9	1	99.3	0	97.2
2 - 2.9	1	100.0	1	100.0
1 - 1.9	0	100.0	0	100.0

Correlation coefficients were calculated between the average scores for items of nursing care and the overall satisfaction item scores reported in Table 30. While the correlations for each delivery type were both statistically significant they were not very large, especially in the vaginal delivery group (vaginal delivery:- $r = .215$, $p = .0073$; cesarean section:-

$r = .406$, $p = .0078$). A correlation coefficient of .215 indicates that satisfaction with nursing care accounted for less than five percent of the variation in overall satisfaction and therefore there must be other factors contributing to the overall satisfaction with the Early Discharge Program other than the mothers' perception of the home nursing care received. (The variation accounted for in the cesarean section group was 16%).

The incidence of certain specific physical problems experienced by mothers and babies was determined as well as the mother's source of help with each problem and her satisfaction with the help obtained. All this information is presented in Table 34. The percentages for each source of help and for the satisfaction ratings (cumulative percentages) are based only upon those who experienced the problem. Percentages for incidence of the problem and continued existence of the problem after the Public Health Nurse finished her visiting are based on the total sample size. In Table 34 reference is made to other problems experienced by the mother and baby, both during and after the Public Health Nurse visits. These problems are listed in Table 35 for both mother and baby.

The Public Health Nurse was very frequently the source of help except for problems with fatigue, emotional tension and the regulation of demands put on the mother by both baby and husband. For all these instances the most frequent source of help was the husband/partner or another relative. In the latter instance the husband/partner was involved in resolving a problem of which he was a part. Satisfaction ratings were uniformly high for the help obtained with each problem even though the sources of help differed.

TABLE 34

PERCENTAGE OF MOTHERS IDENTIFYING SPECIFIC POSTPARTUM PROBLEMS, WHO HELPED WITH PROBLEM AND SATISFACTION WITH HELP OBTAINED

PROBLEM	DELIVERY TYPE	PERCENT WITH PROBLEM	WHO HELPED								SATISFACTION RATING						PERCENT PROBLEM REMAINED
			HUSBAND/ PARTNER	REL-ATIVE	FRIEND	DOCTOR	OTHER	NONE	PUBLIC HEALTH NURSE	HOSPITAL NURSE	7	6	5	4	3	2	
Breasts	Vaginal	53	1	3	1	1	7	19	44	23	81	95	98	100	100	100	13
	Cesarean	54	0	0	5	0	0	21	32	42	93	100	100	100	100	100	15
Fatigue	Vaginal	45	48	34	3	0	2	12	2	0	79	87	94	100	100	100	18
	Cesarean	51	50	22	11	0	0	11	6	0	94	100	100	100	100	100	14
Emotional Tension	Vaginal	27	46	26	3	0	0	17	9	0	57	86	93	100	100	100	11
	Cesarean	37	69	0	0	8	0	0	23	0	85	85	100	100	100	100	9
Discomfort Stitches	Vaginal	46	0	5	2	9	0	22	43	19	75	94	100	100	100	100	19
	Cesarean	58	15	0	5	15	0	30	25	10	77	85	100	100	100	100	17
Bowel Problems	Vaginal	35	0	4	0	7	0	31	42	16	78	94	100	100	100	100	15
	Cesarean	29	0	0	0	0	0	60	20	20	100	100	100	100	100	100	3
Other Problems*	Vaginal	14	0	0	0	17	6	17	56	6	79	100	100	100	100	100	-
	Cesarean	17	0	0	0	33	0	17	50	0	80	80	100	100	100	100	-
Problems Post PHN	Vaginal	10	0	0	0	33	8	42	17	0	86	100	100	100	100	100	-
	Cesarean	14	0	0	0	60	0	40	0	0	67	100	100	100	100	100	-
Feeding Problems	Vaginal	19	0	16	0	0	12	12	48	12	68	91	100	100	100	100	3
	Cesarean	17	0	0	17	17	0	0	67	0	100	100	100	100	100	100	9
Excessive Crying	Vaginal	8	18	27	0	18	0	0	27	9	55	72	91	100	100	100	4
	Cesarean	9	33	0	0	33	0	33	0	0	100	100	100	100	100	100	3
Caring for Baby	Vaginal	9	0	8	8	0	0	0	83	0	83	100	100	100	100	100	1
	Cesarean	9	0	0	33	33	0	0	33	0	100	100	100	100	100	100	3
Regulating Demands	Vaginal	21	46	39	4	0	0	8	4	0	84	96	96	100	100	100	8
	Cesarean	24	63	13	13	0	0	13	0	0	86	86	86	86	86	100	9
Baby's Bowels	Vaginal	7	0	0	0	25	0	25	38	13	83	100	100	100	100	100	2
	Cesarean	17	0	0	0	33	0	17	50	0	100	100	100	100	100	100	3
Other Baby Problems	Vaginal	43	0	0	0	19	2	9	66	4	79	92	96	98	98	100	-
	Cesarean	34	0	0	0	8	0	25	67	0	89	100	100	100	100	100	-
Post PHN Baby Problems	Vaginal	19	0	0	0	33	4	54	8	0	100	100	100	100	100	100	-
	Cesarean	17	0	0	20	40	0	20	0	20	50	75	100	100	100	100	-

* See Table 35.

TABLE 35

FREQUENCY OF OTHER PROBLEMS[1] EXPERIENCED BY MOTHERS AND INFANTS DURING AND AFTER THE PUBLIC HEALTH NURSE VISITS

	VAGINAL DELIVERY (N=132)		CESAREAN SECTION (N=35)	
MOTHERS' PROBLEMS	DURING VISITS	AFTER VISITS	DURING VISITS	AFTER VISITS
Abnormal Vital Signs	2	-	-	-
Breast:				
Sore Nipples	-	1	-	-
Feeding Difficulties	-	1	-	-
Suspected Infection	-	1	-	-
Genitourinary:				
Tender Uterus	2	1	1	-
Subinvolution	1	-	-	-
Abnormal PV Discharge	4	2	1	2*
Episiotomy	1	-	-	1
Wound	1	1	1	-
Bladder	-	1	1	-
Respiratory	-	-	1	-
Eyes, Ears, Nose, Throat	1	-	-	-
Endocrine/Metabolic	2	-	-	-
Musculoskeletal	2	1	-	1
Dermatologic	2	-	-	-
Gastrointestinal	1	1	1	1
Mother-Child Interaction	-	1	-	-
Medical Care Requested	-	1	-	-
No Other Problems	113	120	29	30

* One mother received an episiotomy prior to being delivered by C-Section.

INFANTS PROBLEMS				
Endocrine/Metabolic:				
Jaundice	32	-	5	-
Other	-	1	-	-
Dermatologic	7	5	2	2
Gastrointestinal:				
Feeding Difficulties	3	8	-	2
Excessive Vomiting	1	3	1	-
Other	-	3	-	1
Suspected Infection:				
Local	4	1	1	1
Eyes, Ears, Nose and Throat	3	3	1	-
Genitourinary	3	-	1	-
Respiratory	1	-	-	-
Other	-	1	1	-
No Other Problems	74	106	23	29

[1] As identified by mothers - and see Table 34.

"Other problems", not specifically mentioned on the questionnaire, were infrequent for the mothers but 43% of vaginal and 34% of cesarean delivery babies had an "other problem" during the Public Health Nurse visits and approximately 19% in both groups had problems after the visits ended. Jaundice was the most frequent problem, occurring in 25% of vaginally delivered babies and 14% of babies delivered by cesarean section, which is a much higher percentage than that diagnosed at the pediatric assessment in hospital. The differential magnitude of these two percentages is also reversed compared to the pediatric assessment, because of the time relative to discharge at which bilirubin levels peak in the two groups. Apparently, in the majority of cases, the extent of jaundice in these babies was not considered severe enough to warrant bilirubin testing, since only 42% of them were tested at home. Mothers were the source of the information in Table 35 and they were not able to distinguish between levels of jaundice that were cause for concern and those that were not.

Of the 88% of the mothers who were aware of the program beforehand, 97% indicated that the Early Discharge Program met their expectations. Twelve percent were not familiar with the program prior to being sent home early and therefore had not developed any expectations. When asked what features of the program they liked most, the top three responses, in order were "leaving hospital early", "the helpful care received in the home", and "the information received on self-care and baby-care at home" (see Table 36).

TABLE 36

ASPECTS OF THE PROGRAM THAT WERE LIKED MOST BY MOTHERS

ASPECT	VAGINAL DELIVERY FREQUENCY(%) N=131	CESAREAN SECTION FREQUENCY(%) N=34
Nothing	5 (3.8)	1 (2.9)
Leaving hospital early	50 (38.2)	14 (41.2)
Helpful care in home	39 (29.8)	10 (29.4)
Information re. self/baby care received at home	16 (12.2)	4 (5.9)
Feeding schedule established sooner	2 (1.5)	0
PHN support for problems as they arose	6 (4.6)	1 (2.9)
Could sleep more at home	5 (3.8)	0
Home with other children/ family members sooner	6 (4.6)	3 (8.8)
Other	1 (0.8)	0
Not having to make visit to doctor's office	0	1 (2.9)
Follow-up phone call by PHN	1 (0.8)	0

When asked what aspects of the Early Discharge Program they liked least approximately two-thirds of the mothers in both delivery groups could find nothing that they disliked about the program. The only other clusters of responses were 12% who felt they had not been "ready" to go home and 6% who would have "liked more Public Health Nurse visits", both in the vaginal delivery group (see Table 37). It is interesting to compare those aspects of the program that were liked least to the suggested changes to the program.

TABLE 37

ASPECTS OF THE PROGRAM THAT WERE LIKED LEAST BY MOTHERS

ASPECT	VAGINAL DELIVERY FREQUENCY(%) N=113	CESAREAN SECTION FREQUENCY(%) N=30
Nothing	74 (65.5)	20 (66.7)
Info. re. program not early enough to prepare	3 (2.7)	1 (3.3)
Surprise/negativity from family/friends	1 (0.9)	0
No telephone contact with PHN after visits	0	1 (3.3)
Extra visits to doctor	0	1 (3.3)
No precise appointment time for PHN visit	4 (3.5)	1 (3.3)
No personal contact with PHN prior to visits	1 (0.9)	0
Physically/emotionally unprepared to go home	13 (11.5)	2 (6.7)
Pressure from physician/ hospital to use program	3 (2.7)	0
Family planning advice	1 (0.9)	0
Not enough PHN visits	7 (6.2)	0
Not at ease with PHN	0	2 (6.7)
Staff nurses discouraged early discharge	1 (0.9)	0
Visits took too long	2 (1.8)	0
First visit too soon after discharge	0	1 (3.3)
Conflicting information from different PHN's	1 (0.9)	1 (3.3)
Too many visits	1 (0.9)	0
Not assured of baby's health status	1 (0.9)	0

TABLE 38

SUGGESTED CHANGES TO THE PROGRAM

CHANGE	VAGINAL DELIVERY FREQUENCY(%) N=115	CESAREAN SECTION FREQUENCY(%) N=31
None	75 (65.2)	17 (54.8)
Ensure voluntary	4 (3.8)	0
Inform re. program prenatally or earlier post partum	2 (1.7)	1 (3.2)
Have same PHN for all visits	1 (0.9)	1 (3.2)
Make homemaker services available on discharge	2 (1.7)	0
Arrange for PHN to meet mother prior to discharge	1 (0.9)	0
Arrange more precise appointment time for visits	4 (3.8)	4 (12.9)
Distribute visits over two week period	16 (13.9)	3 (9.7)
Make phone contact with PHN available after visits cease	2 (1.7)	1 (3.2)
Allow longer hospital stay and PHN follow-up	4 (3.8)	0
Improve attitude of hospital staff to and coordination with progam	2 (1.7)	0
Have 1st visit on 2nd day home	0	1 (3.2)
PHN's should be mothers	0	1 (3.2)
Make each visit longer	1 (0.9)	1 (3.2)
Reduce number of visits for multiparas	1 (0.9)	0

Sixty-five percent of vaginal delivery mothers and 55% of cesarean delivery mothers did not suggest any changes (see Table 38). The two most frequent changes suggested were spreading out the Public Health Nurse visits over two weeks instead of having them immediately after discharge and having more precise appointment times for the visits. Interestingly, although 12% of mothers had said that they did not feel ready to go home, not one suggested increasing the length of the hospital stay!

TABLE 39

REASONS FOR DECIDING TO USE THE PROGRAM

REASON	VAGINAL DELIVERY FREQUENCY(%) N=112	CESAREAN SECTION FREQUENCY(%) N=31
Decision made for me	4 (3.8)	2 (6.5)
Language barrier with hospital staff	1 (0.9)	0
Wanted to be home early	53 (47.3)	19 (61.3)
Wanted to leave hospital	16 (14.3)	2 (6.5)
Read poster on ward	2 (1.8)	2 (6.5)
Doctor recommended program	4 (3.8)	2 (6.5)
Doctor encouraged/pressed early discharge	6 (5.4)	1 (3.2)
Had help at home	2 (1.8)	0
Felt home more restful	8 (7.1)	0
Informed re. program by hospital nurse	5 (4.5)	1 (3.2)
Heard about program in prenatal class	2 (1.8)	1 (3.2)
Not aware of program - just discharged early	5 (4.5)	1 (3.2)
Wanted PHN follow-up	4 (3.8)	0

Since some concern had been expressed that mothers were being forced to leave hospital earlier than they wished, mothers were asked what had influenced their decision to be discharged early (see Table 39). There were only a few mothers whose reasons could be interpreted as coercion: those who said that the decision was made for them and those who said that their physician had pressured them into being discharged early. These two categories accounted for only 9% of the total. Another 4% were discharged early without being aware that they were utilising a specific program.

Physicians' Response

At the conclusion of the pilot project a questionnaire was sent to all obstetricians, pediatricians and family practitioners with admitting privileges at St. Boniface General Hospital. Completed questionnaires were received from 52 family practitioners, 32 pediatricians and 14 obstetricians who together comprised 78% of the 126 who received questionnaires. They were asked to indicate whether or not they supported the concept of early discharge, what they thought were the advantages and/or disadvantages of early discharge, to what extent they referred patients to the program, their satisfaction with various aspects of the program, any suggestions for beneficial program changes and any other comments. Responses were analysed by physician's age and area of practice but differences between age and practice groups were evident for only a few questions.

Two-thirds of the physicians stated that they were informed of the program prior to it commencing and of these, 58% obtained the information from their medical colleagues, 20% were informed by their nursing colleagues and the

remainder discovered from the media and other assorted sources that the program was due to start.

The referral pattern of each group of physicians is shown in Table 40. Less than half of the pediatricians answered this question, presumably because the mother is the person referred, not the baby. About one-fifth of the physicians referred no patients to the program but their reasons for not doing so had little to do with their degree of support for the program. They did not refer because their patients delivering at St. Boniface were not suitable for the program (i.e. were high risk deliveries) or because, as family practitioners, they referred their patients to obstetricians. Only two physicians felt that the hospital stay was too short and one felt there was danger from hyperbilirubinemia for the baby. Three physicians did not refer because they had an inadequate understanding of the program i.e. they did not realize that patients discharged early were followed-up by a Public Health Nurse.

TABLE 40

PERCENTAGE OF MATERNITY PATIENTS REFERRED BY EACH SPECIALTY

PERCENT REFERRED	FAMILY PRACTICE	PEDIATRICS	OBSTETRICS	TOTAL	CUMULATIVE PERCENT
none	12	4	1	17	22.1
1% - 10%	9	3	4	16	42.9
11% - 20%	4	1	-	5	49.4
21% - 30%	4	-	4	8	59.8
31% - 40%	5	-	-	5	66.3
41% - 50%	9	1	2	12	81.9
51% - 60%	4	1	1	6	89.7
61% - 70%	-	-	-	0	89.7
71% - 80%	3	1	1	5	96.2
81% - 90%	1	-	-	1	97.5
91% - 100%	-	1	1	2	100.0
Blank	1	20	-	21	-

Sixty-two percent of the Family Practitioners stated that they discussed the program with the mother prenatally and 38% discussed the subject postnatally, with five percent using both opportunities for discussion. The remainder did not discuss the program with their patients at all. Of the obstetricians, 31% discussed the program with their patients before delivery, 54% after and the remainder at both times. Actual referrals all took place postnatally. It is interesting to compare these figures with the sources of program information given by the mothers: only 12% of mothers listed their physician as the source of information from which one might conclude either, i) that the women's memories are faulty, ii) that those physicians, who discussed the program with the mother prenatally, referred proportionally fewer patients to the program than those who did not, or, iii) that physicians, who discussed the program with mothers prenatally, discouraged their use of the program.

Table 41 shows physicians degree of acceptance of the concept of early discharge on a one to seven scale from strong disagreement to strong agreement. While it appears that the level of agreement with early discharge was highest among obstetricians and lowest amongst pediatricians with family practitioners falling between these two groups, the differences were not statistically significant. Overall there seems to be quite a variation in opinion between the physicians. Forty-five percent gave scale scores above four, 34% below four and 21% gave a score of four. If the midpoint of the scale is taken as indicating agreement, then 66% of physicians agree (some more strongly than others) with the concept of early discharge and 34% disagree. For the purposes of this inquiry early discharge was defined as

TABLE 41

LEVEL OF AGREEMENT WITH THE CONCEPT OF EARLY DISCHARGE

	CUMULATIVE PERCENT			
SCALE SCORE	FAMILY PRACTICE (N=51)	PEDIATRICS (N=30)	OBSTETRICS (N=14)	TOTAL
Strongly Agree				
7	11.8	6.7	21.4	11.6
6	31.4	16.7	28.6	26.3
5	43.1	46.7	50.0	45.2
4	68.6	63.3	64.3	66.3
3	88.2	73.3	85.7	83.1
2	96.1	83.3	100.0	92.6
1	100.0	100.0	100.0	100.0
Strongly Disagree				

being within 48 hours for vaginal deliveries and within five days for cesarean deliveries. In addition to the previous question, Physicians were asked which day they considered appropriate for discharging patients after normal and cesarean deliveries. As may be seen in Table 42, day three was the most frequent response for vaginal deliveries, followed by day four and day two, whereas for cesarean deliveries the reponses were more evenly distributed between days five, six and seven.

TABLE 42

APPROPRIATE DAY OF DISCHARGE FOR VAGINAL AND CESAREAN DELIVERIES: PERCENT OF PHYSICIANS RESPONDING FOR EACH POSTPARTUM DAY

DAY OF DISCHARGE	VAGINAL DELIVERIES (N=93)	CESAREAN DELIVERIES (N=90)
1	0.0	0.0
2	18.3	0.0
3	48.4	0.0
4	31.2	2.2
5	2.2	38.9
6	0.0	32.2
7	0.0	23.3
8	0.0	3.3

The response to this question was related to the physician's age but only for vaginal deliveries. Table 43 shows the shift in opinion from shorter to longer hospital stay with increasing age. Area of practice did not affect the physicians' responses to this question.

TABLE 43

PERCENT OF PHYSICIANS IN EACH AGE GROUP WHO CONSIDERED A PARTICULAR POSTPARTUM DAY AS MOST APPROPRIATE FOR DISCHARGE AFTER VAGINAL DELIVERY

PHYSICIAN'S AGE GROUP	POSTPARTUM DAY OF DISCHARGE			
	2	3	4 OR 5	N
25 - 35	22.2	70.4	7.4	27
36 - 45	20.7	44.8	34.5	29
46 - 55	15.8	47.4	36.9	19
Over 55	12.5	12.5	75.0	16

(X^2 = 21.4, p = .0016)

In order to determine if there had been any change in physicians' attitudes to early discharge as a result of the early discharge program they were asked whether or not they had supported the concept of early discharge before the program began. Forty-eight percent answered "yes", 30% were "unsure" and 22% answered "no". It is difficult to compare this response to physicians' post-pilot-project level of agreement with the concept of early discharge (see Table 41 and text) because of differences in the wording and response scales of the two questions. However, it seems as though there was at most a small change in opinion over the course of the pilot project.

Both physicians and nurses were asked if they felt there were any major advantages and/or disadvantages to early discharge for the mother, the baby or the rest of the family and if so, to state what they thought these might be. One might expect that if a physician felt that there were advantages to early discharge they would not think that there were disadvantages and vice versa. However, a substantial proportion of physicians saw both advantages and disadvantages to early discharge (see Table 44). The majority response

TABLE 44

PERCENTAGE OF ALL PHYSICIANS WHO FELT THERE WERE MAJOR ADVANTAGES AND/OR DISADVANTAGES TO EARLY DISCHARGE FOR MOTHERS, BABIES AND FAMILIES

	ADVANTAGES					
	MOTHER (N=84)		BABY (N=81)		FAMILY (N=70)	
DISADVANTAGES	YES	NO	YES	NO	YES	NO
YES	28.6	36.9	12.3	48.1	10.0	20.0
NO	23.8	10.7	24.7	14.8	57.1	12.9

for mothers and babies was to see only disadvantages and for the remainder of the family it was to see only advantages. Physicians' age group was related to whether or not they saw advantages for the mother and for the rest of the family; the relationship to age was not monotonic but older physicians were less likely to see advantages than were younger physicians ($\chi^2 = 8.53$, $p = .036$, for mothers and $\chi^2 = 8.01$, $p = .046$, for families). The specified advantages and disadvantages are shown in Tables 45 and 46, respectively, which also show the nurses' responses to the same questions.

TABLE 45

SPECIFIC ADVANTAGES OF EARLY DISCHARGE

FOR THE MOTHER

	PUBLIC HEALTH NURSES	HOSPITAL NURSES				DOCTORS
		PPU ONLY	NURSERY ONLY	MIXED	TOTAL	
rests better at home	3	4	2	8	14	6
more natural environment	6	5	4	5	14	17
improved bonding at home	1	1	3	9	13	11
less family disruption	2	1	2	5	8	6
facilitates breast feeding	1	3	1	2	6	2
P.H.N. follow-up and teaching	-	-	1	2	3	-
protection from infection	-	1	1	-	2	1
choice of length of stay	-	-	-	2	2	2
promotes self confidence	-	1	-	1	2	2
fewer complications	-	-	-	-	-	1

FOR THE BABY

	PUBLIC HEALTH NURSES	HOSPITAL NURSES				DOCTORS
		PPU ONLY	NURSERY ONLY	MIXED	TOTAL	
improved bonding at home	1	2	4	9	15	11
facilitates breast feeding	1	2	1	3	6	1
protection from infection	1	1	1	2	4	9
more natural environment	-	2	-	-	2	1
better baby care at home	-	-	2	-	2	-

FOR THE REST OF THE FAMILY

	PUBLIC HEALTH NURSES	HOSPITAL NURSES				DOCTORS
		PPU ONLY	NURSERY ONLY	MIXED	TOTAL	
improved bonding at home	5	3	5	12	20	15
less family disruption	6	7	6	7	20	14
no hospital visits	-	1	-	-	1	-

The advantages for the mother which were most frequently mentioned by physicians and nurses alike, were: that home is a more natural environment than hospital, that the home environment provides a better opportunity for bonding between mother and infant, that mothers rest better at home than in hospital, and that being at home earlier makes it easier for mothers to establish breast-feeding. Advantages specified for the baby and the rest of the family also included the opportunity for bonding to occur more rapidly and earlier. The second most frequently specified advantage for the baby was the reduced likelihood of hospital-acquired infection and for the family it was the reduced period of disruption in normal family functioning due to the mother's absence from the home (this was also seen as an advantage for the mother). Because there was some difference of opinion within the group of physicians and within the group of nurses, the converse of some of these advantages were mentioned occasionally as disadvantages.

Physicians and nurses also agreed on the specific disadvantages of early discharge. For the mother, those most frequently cited were: that there was inadequate opportunity for rest and recovery from delivery when leaving hospital after two or three days, that there were additional responsibilities waiting at home such as other children, that since breast-feeding is not well established before leaving hospital, nursing problems might develop after returning home, that mothers could not receive sufficient instruction during the short hospital stay, that there was a possibility of late complications developing after returning home, and that mothers were not physically or emotionally ready to return home at discharge.

TABLE 46

SPECIFIC DISADVANTAGES OF EARLY DISCHARGE

DISADVANTAGE	HOSPITAL NURSES		PUBLIC HEALTH NURSES		PHYSICIANS	
	MOTHER	BABY	MOTHER	BABY	MOTHER	BABY
inadequate monitoring of neonatal jaundice	-	17	-	3	-	18
inadequate healing	-	-	-	-	1	-
inadequate rest/ opportunity for recovery	31	-	6	-	22	-
increased responsibility at home; e.g. other children	24	-	5	-	7	-
too little time for hospital instruction	12	-	-	-	12	-
possibility of complications developing	9	3	2	-	8	9
breast-feeding not well established/nursing problems	20	12	-	-	11	11
inadequate nursing observation	1	1	-	-	4	4
incomplete metabolic screening	-	-	-	-	-	1
not physically/emotionally ready	12	-	2	-	5	-
more phone calls to doctor	-	-	-	-	-	1
bowel routine not established	-	-	-	-	-	1
overhandling of baby	-	-	-	-	-	1
mother's lack of experience	2	2	-	-	0	0

Disadvantages specified for babies were those related to late complications and to breast-feeding, which were also specified for mothers, and the most frequently stated disadvantage for babies was that there was inadequate monitoring of neonatal jaundice. Bilirubin levels often do not peak until after the second or third day post partum, thus when babies are discharged early hyperbilirubinemia can develop at home and there was some concern that this may not be detected promptly by the mother and/or the Public Health Nurse. The only disadvantage mentioned for the remainder of the family was that having the recuperating mother and the new baby at home early would be a burden for them (seven nurses and four physicians gave this disadvantage).

When compared to the hospital nurses, a smaller percentage of the physicians stated that there were advantages and the same percentage stated that there were disadvantages to early discharge. Having stated that there were either advantages or disadvantages the nurses were much more likely to specify what they thought these might be than were the physicians. Therefore, even though more physicians than nurses were surveyed, more nurse responses appear in Tables 45 and 46 than physician responses.

TABLE 47

PHYSICIANS' SATISFACTION WITH PROGRAM ADMINISTRATION (CUMULATIVE PERCENT)

ADMINISTRATIVE COMPONENT	RATING SCALE SCORE							N
	7	6	5	4	3	2	1	
	Very Satisfied						Very Dissatisfied	
Availability of information	3.3	17.6	37.4	70.3	85.7	94.5	100.0	91
Ease of referral	21.0	54.3	74.1	92.6	97.5	100.0	100.0	81
PHN feedback	9.3	24.4	41.9	61.6	72.1	88.4	100.0	86

Physicians were asked to rate their satisfaction with various administrative aspects of the program. Table 47 shows their level of satisfaction regarding availability of program information, ease of referral and Public Health Nurse feedback on patient's progress. If a scale score of four is taken as indicating satisfaction, then 93% of physicians had no problem with referring patients to the program and 70% were satisfied with the availability of program information. However 38% were less than satisfied with Public Health Nurse feedback on their patients' progress. This somewhat lower

level of satisfaction occurred in spite of the availability on the wards of the nurse's discharge summaries and the fact that nurses telephoned the patient's physician or referred them to their physician if any problems arose (see Tables 11A, 11B, 12A and 12B).

Level of satisfaction with Public Health Nurse follow-up care (see Table 48) and feedback to physicians were both related significantly to area of practice; Family Practitioners being least satisfied and Obstetricians being most satisfied with both feedback and care ($F = 3.95$, $p = .023$, for feedback and $F = 3.15$, $p = .049$, for follow-up care). Average scale scores for each practice group on both of these items are shown in Table 49. A priori it seems unlikely that one group of physicians should be more critical of the follow-up care provided to their patients than another group. Since the average scores for satisfaction with feedback show the same pattern as that for care, it might be hypothesized that the family practitioners were less satisfied with care because they received less feedback, however this cannot be concluded from the data.

TABLE 48

PHYSICIAN'S SATISFACTION WITH PATIENT CARE (CUMULATIVE PERCENT)

	RATING SCALE SCORE							
	7	6	5	4	3	2	1	N
COMPONENT OF CARE	Very Satisfied						Very Dissatisfied	
Hospital care	25.3	59.3	86.8	94.5	96.7	100.0	100.0	91
Follow-up care	14.6	41.5	63.4	81.7	96.3	98.8	100.0	82

TABLE 49

AVERAGE SCALE SCORES FOR PHYSICIANS' SATISFACTION WITH PUBLIC HEALTH NURSE FOLLOW-UP CARE AND FEEDBACK BY AREA OF PRACTICE

AREA OF PRACTICE	FEEDBACK	FOLLOW-UP CARE
Family Practitioners	3.45	4.75
Pediatricians	4.19	4.88
Obstetricians	5.08	5.84

Ninety-four percent of the physicians were satisfied to very satisfied with the care their patients received while in hospital. Physicians' age was also related to the score on this scale ($F = 2.33$, $p = .032$) but in a complex way such that no clear trend emerged.

TABLE 50

PHYSICIANS' PERCEPTION OF FREQUENCY OF COMPLICATIONS RESULTING FROM EARLY DISCHARGE (CUMULATIVE PERCENT)

	RATING SCALE SCORE							
	1	2	3	4	5	6	7	N
INDIVIDUAL	No Complications						Many Complications	
Mother	50.7	73.1	80.6	94.0	98.5	98.5	100.0	67
Baby	39.5	59.3	72.1	84.9	97.7	98.9	100.0	86

Table 50 shows the physicians' responses to the question of whether they thought that mothers and/or babies experienced complications as a result of early discharge. About 50% of physicians thought that some mothers did

experience complications as a result of early discharge and 60% thought that this was true for babies. Physician age was related to thinking that babies experienced complications as a result of early discharge ($F = 2.59$, $p = .019$) but, similarly to the relationship with advantages of early discharge for mothers and the rest of the family, it was not a simple monotonic relationship. The nature of the age-related factor which produced this relationship remains obscure. The same pattern of relationship existed between age and thinking that mothers experienced complications due to early discharge, although this was not significant. As may have been anticipated, there was a relationship between area of practice and thinking babies developed complications as a result of early discharge ($F = 6.73$, $p = .002$). Pediatricians were most likely to hold this opinion followed by family practitioners and obstetricians (average scale scores were 3.200, 2.256 and 1.539, respectively).

Physicians were asked if they thought mothers experienced problems in early discharge due to lack of support systems at home, lack of 24 hour access to medical and nursing care and too few Public Health Nurse visits. Their responses are given in Table 51. A sizeable proportion of the physicians felt that mothers experienced problems in these areas, 69%, 51% and 41% of the physicians for each problem respectively. Clearly these responses from the physicians, regarding problems and complications, are at variance with the mothers' own statements. Only 12 of the vaginal delivery mothers and none of the cesarean delivery mothers had no help in the home, yet 50 physicians felt mothers experienced some degree of problem with lack of support systems at home. None of the mothers who completed satisfaction

TABLE 51

PHYSICIAN'S PERCEPTION OF FREQUENCY OF CERTAIN PROBLEMS MOTHERS MAY HAVE EXPERIENCED WITH EARLY DISCHARGE (CUMULATIVE PERCENT)

	RATING SCALE SCORE							
	1	2	3	4	5	6	7	N
PROBLEM	No Problems						Many Problems	
Lack of home support systems	30.6	43.1	51.4	68.1	93.1	97.3	100.0	72
Lack of 24 hour access to care	49.3	64.8	71.8	88.7	94.3	98.5	100.0	71
Too few PHN visits	39.4	60.6	75.8	94.0	98.5	100.0	100.0	66

questionnaires expressed concern over the lack of 24 hour access to care and only 6% of vaginal delivery mothers and no cesarean delivery mothers suggested that there were too few Public Health Nurse visits. Data obtained by the Public Health Nurses regarding their consultations with and referrals to physicians do not seem to support the physicians notion that complications develop as a result of early discharge. All problems listed seem to be of a type that might very well have occurred with or without early discharge and this was also found to have been true for the few hospital readmissions of mothers and babies.

When asked if they had felt pressured to discharge maternity patients early by patients themselves, nurses, the hospital administration or government policy, the physicians responded as shown in Table 52. Physicians felt the greatest pressure to discharge early from nurses (mean score = 3.9) followed

closely by the hospital administration (mean score = 3.6). Government policy was seen as the next largest source of pressure to discharge early (mean score = 3.2) and patients were perceived as exerting the least pressure to discharge early (mean score = 2.6). The extent to which the physicians felt pressured to discharge their patients early seemed not to be passed on to the mothers since only nine percent indicated either that they were pressured by their physicians or had their physicians make the decision for them (see page 45).

TABLE 52

PHYSICIAN'S PERCEPTION OF PRESSURE TO DISCHARGE PATIENTS EARLY FROM VARIOUS SOURCES (CUMULATIVE PERCENT)

	RATING SCALE SCORE							
	1	2	3	4	5	6	7	N
SOURCE	Not at all Pressured						Very Pressured	
Patients	42.2	63.9	71.1	85.6	92.8	98.8	100.0	83
Nurses	16.5	24.7	42.3	61.1	75.2	91.7	100.0	85
Hospital	25.9	40.7	45.6	55.5	76.5	91.3	100.0	81
Government	32.9	49.4	55.7	69.6	81.0	93.7	100.0	79

Another method of investigating the physicians' support for the early discharge program was to ask them what they thought the fate of the program should be. Three alternatives were offered: expand the program to other hospitals, stop it altogether or continue to operate the program only at St. Boniface Hospital. Sixty percent wished to see the program expanded, 22% wished it stopped and 18% wished it to continue at St. Boniface only. When

this response was compared to the question regarding support of the early discharge concept before the pilot project began, it became apparent that a number of the physicians had changed their opinions as a result of experience gained from the pilot project (see Table 53). Of those who did not support the concept initially 33% wished to see the program expanded to other hospitals and 22% wished to see it remain at St. Boniface, i.e. 55% of those initially opposed to early discharge wished to see the program continue in some form. Of those who were unsure of their opinion at first,

TABLE 53

RELATIONSHIP BETWEEN PHYSICIANS' SUPPORT OF THE EARLY DISCHARGE CONCEPT PRIOR TO THE PILOT PROJECT AND THEIR WISHES REGARDING THE FATE OF THE PROGRAM (N=86)

PRIOR SUPPORT OF CONCEPT	DESIRED FATE OF PROGRAM		
	EXPAND	ST. BONIFACE ONLY	STOP
YES	31	5**	2**
UNSURE	13*	4	3**
NO	9*	6*	13

(X^2 = 20.7, p .001)

* indicates positive opinion change
** indicates negative opinion change

65% wished to see the program expanded, 20% were still ambivalent in that they wished the program to continue only at St. Boniface and 15% wished it to stop. Of the physicians who had been in favour of early discharge at the start of the program 85% wished to see the program expanded to other

hospitals, 13% thought that the program should continue to be available only at St. Boniface Hospital and only 5% wished it to stop. Altogether the number of physicians who changed their opinions in a direction favourable to early discharge was 28, or 33%, this was offset by 10 physicians, 12% of the total, who changed their opinion in the negative direction.

Physicians' opinions as to what should be the fate of the program were related to their age group: with increasing age there was a decreasing desire for expansion and an increasing desire to see the program stopped (see Table 54). Again, the nature of the age related variable, that underlies this difference of opinion between the age groups, remains obscure.

TABLE 54

PERCENT OF PHYSICIANS' IN EACH AGE GROUP HOLDING EACH OPINION REGARDING THE FATE OF THE EARLY DISCHARGE PROGRAM

AGE GROUP	EXPAND TO OTHER HOSPITALS	ST. BONIFACE ONLY	STOP COMPLETELY	N
25 - 35	76.0	16.0	8.0	25
36 - 45	64.5	12.9	22.6	31
46 - 55	52.9	35.3	11.8	17
over 55	31.3	12.5	56.3	16

None of the obstetricians wished to see the program stopped and all but one of them wished to see an expansion to other hospitals whereas 22% of family practitioners and 33% of pediatricians wished to see the program stopped. This relationship was not statistically significant ($\chi^2 = 8.59$, $p = .072$) because of the small number of obstetricians.

The extent of the physicians' familiarity with the early discharge program was assessed by asking them how many babies they delivered at St. Boniface or, to how many newborns they provided care over the one year period. Obstetricians had the greatest number of cases at St. Boniface, family practitioners the fewest and pediatricians had an intermediate number. This information was then correlated with their opinions of the program and no relationships emerged.

Finally physicians were asked for any other comments or suggested program changes that they might have. These responses appear in Table 55 which also

TABLE 55

COMMENTS AND SUGGESTED PROGRAM CHANGES

	PHYSICIANS	HOSPITAL NURSES
good program/no changes	3	13
volunteers only - no pressure to discharge	3	10
determine length of stay individually	6	10
optimal medical/psychosocial situations only	2	4
program not so suitable for primiparas	1	1
improve care continuity - hospital to follow-up	2	3
follow-up should be by mid-wives	1	
orient & integrate hospital and P.H. nurses	1	2
close monitoring by P.H.N. essential	1	6
neonatal complications not affected by early discharge	1	
deplorable care given by pediatricians at SBGH	1	

TABLE 55 (continued)

	PHYSICIANS	HOSPITAL NURSES
establish program permanently	1	2
expand to other hospitals reopen Concordia and Seven Oaks	2	
make program available to rural patients	1	1
P.H.N. follow-up for all mothers regardless of length of stay		1
more physicians should refer to program		2
increase hospital stay to 72 hours	2	5
taxpayers entitled to longer stay/ increase number of hospital beds		1
24-hour access to P.H. or hospital nurses	1	4
increase frequency/duration of P.H.N. visits	3	1
Add postnatal class 2-3 weeks post delivery		1
introduce PHN/program at prenatal classes	2	6
improve preparation for early discharge		3
encourage rooming-in for early discharge		2
standarize maternal and child teaching	1	1
stay too short for required hospital teaching		5
increase nurse/patient ratio to allow for shorter hospital teaching period		5
redistribute teaching between nospital and Public Health Nurses		4
P.H.N. follow-up reinforces hospital nurse teaching	1	4
mothers discharged on program would have gone home early anyway		1
pediatrician unaware of which babies on program	1	
reduced health care costs	3	1
No comment	71	36

shows the nurses' responses to the same question. Twenty-eight percent of the physicians and 54% of the nurses gave responses to this question which covered several broad areas of concern. The physicians' major area of concern was that each patient should be considered individually rather than treating everyone uniformly. Their specific concerns in this area were: i) patients should not be pressured into early discharge merely because they met all the criteria, ii) the length of stay should be determined separately for each patient taking their wishes into consideration, iii) only those with optimal psychosocial conditions should be discharged early and iv) special consideration should be given to discharging first-time mothers early because their adjustment is more difficult.

Physicians were also concerned about the quality and quantity of follow-up care. Items mentioned by a few physicians were: i) better continuity should be established between hospital and follow-up care, ii) hospital staff nurses should be oriented to the program, and care offered by hospital nurses and Public Health Nurses should be integrated on an individual patient basis, iii) close monitoring of patients by Public Health Nurses is essential, iv) more or longer Public Health Nurse visits should be available and v) that patients should have 24 hour telephone access to either hospital or Public Health nurses (in fact, patients were encouraged to telephone the ward or their physician 24 hours a day - or the Public Health Nurse during working hours). A few physicians mentioned that patients should be prepared for early discharge by, for example, introducing the subject at prenatal classes (this was already being done at several locations), and, that consideration be given to standardizing and integrating the teaching the mother receives in hospital and at home on the program.

A few physicians praised the program and wished to see it expanded to other hospitals and made available to rural patients. The final item was that reduction of health care costs would be one result of the program.

Hospital Nurses' Response

A questionnaire was sent to all nurses who were employed at St. Boniface hospital in either the postpartum unit, the integrated family-centred care unit or the nurseries as of April 30, 1984 (including those on leave). Seventy-eight of the 110 nurses or 71% returned completed questionnaires.

For the purposes of analysis the nurses were divided into three groups according to their employment experience during the year of the pilot project. These groups were: i) those who had worked exclusively in the postpartum unit, ii) those who had worked exclusively in the nurseries and iii) those who had worked exclusively in the integrated family-centred care unit, or who had worked in any combination of two or three of the preceding areas. Therefore the first group had worked only with mothers, the second group only with babies and the third group had worked with both babies and mothers. It was thought that the nurses specific work experience might alter their perception of the program, which indeed proved to be true.

Nurses were asked to respond to a set of questions which were the same as or similar to those appearing in the physicians' questionnaire. In addition the nurses were asked a series of questions related to whether specific items of postpartum teaching were better done in hospital or at home. As for the physician questionnaire, all responses were analysed by "area of

practice" and age. Several relationships were identified between the opinions and work experience of the nurses during the pilot project, however, in contrast to the physicians, no relationships were found between the nurses' opinions and their age.

Nurses were asked if they were in favour of early discharge after the experience of the pilot project and also if they had been in favour of early discharge before the program started. Their responses, shown in Table 56, demonstrate that a considerable number of nurses changed their opinion of early discharge in a favorable direction as a result of the pilot project. Overall, 57% of hospital nurses ended up being in favour of early discharge after vaginal delivery and 58% after cesarean delivery. The percentage of nospital nurses who changed their opinion in the positive direction was 26% for vaginal delivery and 35% for cesarean delivery. One nurse changed her opinion in the negative direction for both delivery types.

The work experience of the nurses was related to their opinions of early discharge. For vaginal deliveries, nurses who had worked exclusively on the postpartum unit started out with the most unfavourable opinion of early discharge compared to the other two groups, and fewer of them changed their opinions as a result of the pilot project. (The other two groups were about equal in the percent holding eacn opinion both before and after the project). For cesarean deliveries, the postpartum unit nurses showed less overall opposition to early discharge and about twice the number changed their opinion from negative to positive during the pilot project as had for vaginal deliveries. Nurses who had worked only in the nursery started out

TABLE 56

RELATIONSHIP BETWEEN PREVIOUS AND PRESENT OPINION OF EARLY DISCHARGE AND AREA(S) WORKED FOR VAGINAL AND CESAREAN DELIVERY (PERCENTS FOR EACH AREA)

VAGINAL DELIVERY

Previous Opinion	Present Opinion	AREA(S) WORKED			
		PPU (N=23)	Nursery (N=27)	Mixed (N=26)	Total (N=76)
Yes	Yes	8.7	37.0	42.3	30.3
No	No	65.2	33.3	30.8	42.1
No	Yes	21.7	29.6	26.9	26.3
Yes	No	4.3	0.0	0.0	1.3

(χ^2 = 10.16, p < .050)

CESAREAN SECTION

Previous Opinion	Present Opinion	AREA(S) WORKED			
		PPU (N=23)	Nursery (N=25)	Mixed (N=26)	Total (N=74)
Yes	Yes	4.3	24.0	38.5	23.0
No	No	52.2	36.0	34.6	40.5
No	Yes	39.1	40.0	26.9	35.1
Yes	No	4.3	0.0	0.0	1.4

(χ^2= 8.15, NS)*

* χ^2 was calculated on the first three rows only because the expected frequencies in the last row were too small.

less favourably disposed to early discharge for cesarean deliveries than they had been for vaginal deliveries but more changed their opinion so that about the same percentage were in favour of early discharge for both delivery types after the pilot year ended. Those nurses with experience nursing

both mothers and babies had about the same percentage in favour of early discharge for both delivery types, both before and after the pilot year.

Table 57 shows the percentage of nurses who thought that there were advantages and/or disadvantages to early discharge by the area(s) in which

TABLE 57

NUMBERS(%) OF NURSES IN EACH AREA WHO FELT THAT THERE WERE ADVANTAGES AND/OR DISADVANTAGES TO EARLY DISCHARGE FOR MOTHERS, BABIES AND FAMILIES

ADVANTAGES

INDIVIDUAL(S)	HOSPITAL NURSES				PUBLIC HEALTH NURSES
	PPU	Nursery	Mixed	Total	
MOTHER	52.4	46.4	85.2	61.8	83.3
	(χ^2 = 9.85, p = .0073)				
BABY	38.1	42.9	70.4	51.3	66.7
	(χ^2 = 6.40, p = .0452)				
FAMILY	76.2	59.3	88.9	74.7	100.0
	(χ^2 = 6.30, p = .0428)				

DISADVANTAGES

INDIVIDUAL(S)	HOSPITAL NURSES				PUBLIC HEALTH NURSES
	PPU	Nursery	Mixed	Total	
MOTHER*	87.0	78.6	66.7	76.9	83.3
BABY*	52.6	60.7	66.7	60.8	63.6
FAMILY*	33.3	26.9	38.5	32.9	45.5

* No significant differences between areas worked

TABLE 58

PERCENTAGE OF NURSES IN EACH GROUP WHO THOUGHT THAT THERE WERE ADVANTAGES AND/OR DISADVANTAGES TO EARLY DISCHARGE, OR NEITHER, FOR MOTHERS, BABIES, AND FAMILIES

MOTHERS		HOSPITAL NURSES				PUBLIC HEALTH
ADVANTAGES	DIS-ADVANTAGES	PPU	NURSERY	MIXED	TOTAL	NURSES
YES	YES	38.1	32.1	51.9	40.8	66.7
YES	NO	14.3	14.3	33.3	21.1	16.7
NO	YES	47.6	46.4	14.8	35.5	16.7
NO	NO	0.0	7.1	0.0	2.6	0.0
	N	21	28	27	76	12

BABIES		HOSPITAL NURSES				PUBLIC HEALTH
ADVANTAGES	DIS-ADVANTAGES	PPU	NURSERY	MIXED	TOTAL	NURSES
YES	YES	16.7	17.9	37.0	24.7	45.5
YES	NO	22.2	25.0	33.3	27.4	27.3
NO	YES	38.9	42.9	29.6	37.0	18.2
NO	NO	22.2	14.3	0.0	11.0	9.1
	N	18	28	27	73	11

FAMILIES		HOSPITAL NURSES				PUBLIC HEALTH
ADVANTAGES	DIS-ADVANTAGES	PPU	NURSERY	MIXED	TOTAL	NURSES
YES	YES	17.6	11.5	34.6	25.4	45.5
YES	NO	58.8	50.0	53.8	53.6	54.5
NO	YES	17.6	15.4	3.8	11.6	0.0
NO	NO	5.9	23.1	7.7	13.0	0.0
	N	17	26	26	69	11

they had worked during the pilot project. Overall, nurses were most likely to think that there were advantages for the rest of the family, somewhat less likely to tnink that there were advantages for the mother and least likely to tnink that there were advantages for the baby. On the opposite side, nurses were most likely to think that there were disadvantages for the mother, somewhat less likely to think that there were disadvantages for the baby and least likely to think that there were disadvantages for the rest of the family.

Those nurses who had had experience nursing both mothers and babies during the pilot year were the most likely of the three groups of nurses to think that there were advantages to early discharge for both the mother and the baby and for the rest of the family. Nursery and postpartum unit nurses were about equally likely to think that there were advantages for mothers and/or babies, whereas postpartum unit nurses were more likely than nursery nurses to think that there were advantages for the rest of the family. No differences existed between the groups of nurses in the percentages thinking that there were disadvantages for mothers, babies or the rest of the family.

Similarly to the physicians, there were a considerable number of nurses who thought that there were both advantages and disadvantages to early discharge. This was most apparent amongst the nurses who had nursed both mothers and babies; also, all groups of nurses showed a fair percentage with mixed opinions for mothers (see Table 58). The specific advantages and disadvantages listed by the nurses have been presented already in Tables 45 and 46.

The nurses were asked to comment upon the eligibility criteria for the program: 73% thought that they were appropriate while 16% thought that tney were too stringent and 10% tnougnt that tney were not stringent enough. When asked to elaborate on why they thought the eligibility criteria were not appropriate, those who nad thought them too stringent felt that the follow-up care should be available to all patients regardless of when discnarged. Tne seven nurses who felt the eligibility criteria were not stringent enough suggested that patients should be more critically assessed for willingness, health status, home support systems, etc., before being discharged early.

Nurses were asked to state to what percentage of tneir patients, who met the eligibility requirements, they recommended early discharge. Their responses are shown in Table 59. Only 20% of nurses recommended early discharge to all or nearly all their patients who met the eligibility criteria.

TABLE 59

PERCENTAGE OF NURSES WHO RECOMMENDED EARLY DISCHARGE TO A PARTICULAR PERCENTAGE OF ELIGIBLE PATIENTS

PERCENT REFERRED	AREA(S) WORKED		TOTAL	PERCENT	CUMULATIVE PERCENT
	PPU	MIXED			
none	1	2	3	6.7	100.0
1% - 10%	4	1	5	11.1	93.4
11% - 20%	1	2	3	6.7	82.3
21% - 30%	1	2	3	6.7	75.6
31% - 40%	-	4	4	8.9	68.9
41% - 50%	2	4	6	13.3	60.0
51% - 60%	2	2	4	8.9	46.7
61% - 70%	1	2	3	6.7	37.8
71% - 80%	3	1	4	6.7	31.1
81% - 90%	1	-	1	2.2	22.2
91% - 100%	5	4	9	20.0	20.0

Table 60 shows that many of the hospital nurses felt that several patients experienced difficulty with early discharge for one or another of the reasons outlined. Their median scale responses for the items range from 2.4 for concern about lack of 24 hour access to medical care to 3.1 for not feeling emotionally prepared for early discharge (the median responses for problems caused by lack of knowledge of the program prior to hospitalization and not feeling physically prepared for early discharge were 2.7 amd 2.9 respectively). This indicates that the median perception of the hospital nurses was that one-quarter to one-third of patients had problems in one or more categories.

TABLE 60

NURSES PERCEPTION OF THE NUMBER OF PATIENTS
WHO EXPERIENCED CERTAIN PROBLEMS WITH EARLY DISCHARGE (PERCENT)

SOURCE OF PROBLEM	HOSPITAL/ PUBLIC HEALTH NURSES	RATING SCALE SCORE 1	2	3	4	5	6	7	N
		None						All	
Lack of prior knowledge re. early discharge	H	28.6	10.7	16.1	16.1	19.6	7.1	1.8	56
	PH	60.0	10.0	0.0	20.0	10.0	0.0	0.0	10
Physically unprepared	H	8.6	15.5	27.6	15.5	22.4	8.6	1.7	58
Emotionally unprepared	H	3.4	25.4	18.6	23.7	18.6	8.5	1.7	59
Lack of 24 hour access to care	H	15.8	24.6	24.6	14.0	8.8	10.5	1.8	57
	PH	60.0	20.0	20.0	0.0	0.0	0.0	0.0	10
Too few visits	PH	80.0	20.0	0.0	0.0	0.0	0.0	0.0	10
Too many visits	PH	80.0	10.0	10.0	0.0	0.0	0.0	0.0	10
Difficulty scheduling visits	PH	60.0	40.0	0.0	0.0	0.0	0.0	0.0	10

Nurses' satisfaction with the care that they were able to provide to mothers and babies and with the process of establishing communication with physicians during the pilot project is shown in Table 61. If a scale point of four is taken as indicating satisfaction, then one third of the hospital nurses were less than satisfied with the care that they were able to provide to mothers. This may well relate to the feeling expressed by several of the hospital nurses and physicians that there was insufficient time available for patient instruction during the shortened hospital stay. Eighty-four percent of the hospital nurses were satisfied to very satisfied with the care that they were able to give to babies and approximately one-third were less than satisfied with the process of establishing communication with physicians.

TABLE 61

NURSES SATISFACTION WITH VARIOUS ASPECTS OF THE PROGRAM
(CUMULATIVE PERCENT)

ASPECT OF PROGRAM		RATING SCALE SCORE							N
		7 Very Satisfied	6	5	4	3	2	1 Very Dissatisfied	
Care able to provide mothers	H	4.8	19.0	31.0	66.7	83.3	95.2	100.0	42*
	PH	75.0	75.0	100.0	100.0	100.0	100.0	100.0	12
Care able to provide babies	H	8.9	44.4	60.0	84.4	93.3	95.6	100.0	45**
	PH	75.0	83.3	100.0	100.0	100.0	100.0	100.0	12
Communication with physicians	H	4.8	21.0	35.5	67.7	77.4	87.1	100.0	62
	PH	40.0	50.0	90.0	100.0	100.0	100.0	100.0	10
Administration	PH	8.3	25.0	58.3	75.0	75.0	75.0	100.0	12

H = hospital nurse; PH = Public health Nurse
* nursery only nurses excluded from this number
** postpartum unit only nurses excluded from this number

TABLE 62

PERCENTAGE OF NURSES WHO FELT THAT SPECIFIC ITEMS OF POSTPARTUM NURSING CARE AND TEACHING WOULD BE BETTER DONE AT HOME OR IN HOSPITAL (OR EITHER)

ITEM	TYPE OF NURSE*	LOCATION			N
		HOME	HOSPITAL	EITHER	
massage and expression teaching	H	16.9	40.3	42.9	77
	PH	25.0	8.3	66.7	12
breast feeding teaching	H	5.2	64.9	29.9	77
	PH	41.6	0.0	58.3	12
baby bath demonstration	H	11.7	51.9	36.4	77
	PH	16.7	41.6	41.6	12
suture removal	H	12.3	52.0	34.7	75
	PH	0.0	25.0	75.0	12
urinalysis (mother)	H	9.3	57.3	33.3	75
	PH	16.7	25.0	58.3	12
blood work: phenylketonuria	H	13.3	44.0	42.7	75
	PH	16.7	25.0	58.3	12
bilirubin	H	2.8	62.5	34.7	72
	PH	0.0	41.6	58.3	12
observation for bonding	H	15.6	36.4	48.1	77
	PH	33.3	16.7	50.0	12
family planning	H	38.7	9.3	52.0	75
	PH	75.0	0.0	25.0	12
peri-care	H	1.3	83.1	15.6	77
	PH	0.0	50.0	50.0	12
treating sore nipples	H	3.9	44.2	51.9	77
	PH	16.7	8.3	75.0	12
information on rest and exercise	H	9.1	32.5	58.4	77
	PH	50.0	8.3	41.6	12
nutrition/bowels information	H	5.3	27.6	67.1	76
	PH	41.6	0.0	58.3	12
baby care teaching	H	1.3	36.4	62.3	77
	PH	41.6	0.0	58.3	12

* H = Hospital nurse; PH = Public Health Nurse

Many items of postpartum nursing care and teaching were carried out by the Public Health Nurses in the home and there was interest in both the hospital nurses and the Public Health Nurses' thoughts on which items were better carried out at home and which in hospital. Table 62 shows the nurses response for all these items. There were very few hospital nurses who felt that home was the best place for any of the items of care or teaching, with the exception of family planning. A clear majority of hospital nurses felt that the following items were better done in hospital: perineal care, breast feeding teaching, monitoring babies' bilirubin levels and urinalysis (mother). About half the hospital nurses felt that suture removal and the baby bath demonstration would be better done in hospital, and, for the remainder of the items hospital was the location of choice for only a minority of the nurses.

For some of the items the nurses opinions differed significantly depending upon their work experience during the pilot project. More of the nurses with experience nursing both mothers and babies thought that massage and expression teaching would be better done at home or either location than did those nurses whose experience was with either mothers or babies (χ^2 = 10.2, p = .037). The reverse of this pattern was evident for the baby bath demonstration and suture removal (χ^2 = 13.1, p = .011; χ^2 = 24.6, p = .0001 respectively).

The opportunity to make a home visit with a Public Health Nurse was made available to some of the hospital nurses. Only 16% of the hospital nurses made a home visit and, when the remainder were asked why they had not made a visit, 67% of those who replied stated that there had been no opportunity to

do so, 14% were not aware that this was a possibility, 14% had not been able to find the time to do so and 4% said that a home visit was not encouraged or required.

All Public Health Nurses completed discharge summary forms on each patient which were to have been shared with the hospital nurses. Judging from the responses to questions regarding these forms, it was apparent that many of the hospital nurses either were not aware that these forms existed or had not ever seen one. One-third of the hospital nurses did not respond to questioning about these forms and of the two-thirds who did respond half never saw one of the forms. Thus only one-third of the hospital nurses used the forms to any extent. Uses found for the forms by the hospital nurses are listed in Table 63.

TABLE 63

NUMBERS OF HOSPITAL NURSES WHO FOUND SPECIFIC USES FOR THE PUBLIC HEALTH NURSE DISCHARGE SUMMARY FORMS

to improve/repriorize postpartum teaching	5
to teach patients how to avoid or deal with potential problems	4
to work with P.H.N.s to avoid patient problems	1
to learn how patients resolve problems at home	3
to evaluate program criteria	4

Forty-three percent of the hospital nurses thought that the early discharge program increased their workload. Mothers and babies who were discharged early were among the healthiest in the group hospitalized for delivery at St. Boniface. This allows beds to be available for sicker patients who require a greater amount of nursing care and hence increase the nurses' workload. It is also possible that the existence of a formal early discharge program may have alerted some nurses to the difficulty of completely fulfilling their responsibilities to patients within the shorter lengths of stay. Another 50% of nurses thought that their workload had remained the same and the final 7% thought that it had decreased.

TABLE 64

NUMBER OF PUBLIC HEALTH NURSE VISITS CONSIDERED APPROPRIATE BY NURSES AND THE POSTPARTUM DAY CONSIDERED BEST TO COMMENCE VISITS

NUMBER OF VISITS	HOSPITAL NURSES(%) (N=72)	PUBLIC HEALTH NURSES(%) (N=11)	DAY TO START VISITS	HOSPITAL NURSES(%) (N=74)	PUBLIC HEALTH NURSES(%) (N=12)
1	2.8	0.0	1	62.2	83.3
2	22.2	54.5	2	27.0	16.7
3	30.6	36.4	3	6.8	0.0
4	25.0	0.0	4	2.7	0.0
5	9.7	9.1	5	1.4	0.0
6	6.9	0.0			
7	2.8	0.0			

Table 64 shows that hospital nurses thought patients who were discharged early should receive between two and four Public Health Nurse visits commencing on day one or two post partum. This is the pattern of visits that was acheived during the pilot project (see Table 10 and associated text).

Seventy percent of the nurses surveyed listed R.N. as their professional degree status, another 12% listed B.N. and the remaining 18% listed L.P.N. Their lengths of experience as a hospital nurse and as an obstetric or maternal and child nurse are shown in Table 64. Only 17% had worked less than the full year in association with the early discharge program. The majority of the nurses were employed part-time with only 37% being full-time employees.

TABLE 64

LENGTH OF TIME AS HOSPITAL NURSE AND AS OBSTETRIC OR MATERNAL AND CHILD CARE NURSE

TIME AS HOSPITAL NURSE	PERCENT OF NURSES (N=76)	TIME AS OBSTETRIC/ MATERNAL/ CHILD NURSE	PERCENT OF NURSES (N=77)
6 MONTHS	2.6	6 MONTHS	3.9
6 -12 MONTHS	11.8	6 -12 MONTHS	13.0
1 - 2 YEARS	13.2	1 - 2 YEARS	64.9
3 - 5 YEARS	13.2	3 - 5 YEARS	18.2
½ 5 YEARS	59.2	½ 5 YEARS	0.0

Public Health Nurses' Response

The number of Public Health Nurses who participated in the Early Discharge Pilot Project was much smaller than the number of hospital nurses who were surveyed. Twelve out of the 15 Public Health Nurses returned completed questionnaires, which were very similar in content to those received by hospital nurses. Since the number of Public Health Nurses was so small even one nurse constitutes a large percentage of the total number of Public Health Nurses and consequently care must be exercised in the interpretation of differential percentage response rates to the various questions. For this reason only those responses that differed markedly from those of the

hospital nurses will be discussed, as well as the responses to those questions asked exclusively of the Public Health Nurses. Responses obtained from the Public Health Nurses may well be of greater value than those obtained from hospital nurses because the former group was the one that had the primary experience of what actually happens to patients after early discharge, however, it is difficult to place any reliance upon differences in response rates between the two groups when one of them is so small.

A larger percentage of Public Health Nurses were in favour of early discharge both before and after the pilot project than were hospital nurses: 50% before and 92% after compared to the figures for hospital nurses of 32% before and 57% after for vaginal delivery. The percentages for cesarean delivery were 33% and 92% versus 24% and 58%. It is also evident that a larger percentage of Public Health Nurses were influenced positively by their experience of the program than was the case for hospital nurses. Forty-two percent changed their opinion in the positive direction for vaginal deliveries and 58% for cesarean deliveries.

TABLE 65

RELATIONSHIP BETWEEN PREVIOUS AND PRESENT OPINION OF EARLY DISCHARGE FOR PUBLIC HEALTH NURSES

Previous Opinion	Present Opinion	DELIVERY TYPE	
		Vaginal	Cesarean
Yes	Yes	6	4
No	No	1	1
No	Yes	5	7
Yes	No	0	0

Public Health Nurses were i) more likely than hospital nurses to see both advantages and disadvantages to early discharge for mothers, babies and the remainder of the family, ii) about equally likely to see only advantages in all three categories and iii) less likely to see only disadvantages (see Table 58). The specific advantages and disadvantages given by these nurses appear in Table 45 beside those given by hospital nurses and physicians and seem to be very similar to those given by the other two groups and also to assume equal importance.

Compared to hospital nurses and physicians, the Public Health Nurses thought that fewer of the patients experienced problems with early discharge (see Tables 51 and 60). As far as the hospital nurses were concerned problems experienced by patients were in anticipation of early discharge whereas problems were real once the patients returned home. It is not unreasonable that the hospital nurses should expect problems for their patients once they returned home after being discharged early, however, it seems that the extent to which they thought problems would occur for the mothers was not matched by what actually occurred.

Eight of the Public Health Nurses thought that patients received an appropriate number of visits. Two nurses thought that a few patients did not get sufficient visits and two other nurses thought that a few patients received too many visits. Six nurses found that none of their patients had difficulty scheduling Public Health Nurse visits and four found that a few of their patients did have some difficulty. All 12 nurses thought that they provided a useful service to both mothers and babies, however one nurse

qualified her answer by saying that she "usually" provided a useful service to patients.

Two-thirds of the Public Health Nurses thought that the eligibility criteria for entry into the program were appropriate and the remainder thought that they were not stringent enough. Changes suggested by this latter third of the nurses were to assess the mothers' support systems to ensure their adequacy for early discharge and to make sure that likely candidates for early discharge were given information about the nature of the early discharge program prior to hospitalization so that they and their families would be prepared in the event they were discharged early. Two nurses commented that there were many mothers discharged early who were exceptions to the physical and/or psychosocial criteria. This would have occurred when mothers insisted upon being discharged early even though they were not regarded as being suitable for the program: they would have been followed-up by the nurses but were not included in the evaluation. Another two nurses felt that the voluntary aspect of the program should be emphasized when discussing the program with its prospective users.

The Public Health Nurses had a completely different perspective than that of hospital nurses on the question of which items of postpartum nursing care and teaching were best done at home and which were best done in hospital or in either location. As may have been expected, the Public Health Nurses were much more likely than hospital nurses to think that these items should be carried out in the home: there were no items that a majority of the Public Health Nurses thought better carried out in hospital. However, it is

obvious that each group of nurses is biased toward their own location for carrying out postpartum nursing care and teaching.

The experience gained by Public Health Nurses led six of them to the conclusion that only two postpartum visits were necessary, even after cesarean section. Another four felt that three visits were appropriate and one nurse thought that five were needed but qualified her answer by saying that the number could be fewer depending on the circumstances. Another nurse did not answer this question for the same reason. Ten out of the twelve nurses thought that the visits should commence on day one post partum while the remaining two thought that the first day of visiting should be day two. A comparison of these responses with those of the hospital nurses is shown in Table 63. Public Health Nurses felt that fewer visits were necessary than did hospital nurses.

Half of the Public Health Nurses recommended that the program be operated by decentralized specialty nurses in maternal and child health activities only, and the remainder were split between recommending centralized specialty nurses for maternity early discharge and recommending that this work be integrated with other Public Health Nurse activities. The advantages and disadvantages of working in a specialized program, that were specified by the nurses, are shown in Table 66. The Public Health Nurses specified advantages that were no different than the advantages of specializing in any area viz: through concentrating time, energy and effort in one area one becomes more knowledgeable and expert in that area. The other side of the coin, stated frequently as a disadvantage, is that as a

result of concentrating in one area not all one's knowledge and skills are utilized and consequently those in other areas may be lost. Also, although one may become expert in one area, its limited nature may lead to monotony and boredom. A disadvantage specific to this program was the uneven workload, which was due to the relatively small number of nurses in the program and fluctuations in the frequency of eligible deliveries.

TABLE 66

ADVANTAGES OF WORKING IN SPECIALIZED PROGRAM

AVANTAGES	NUMBER OF NURSES
More knowlegeable in specialized area	5
Very familiar with technical and assessment skills	3
Can concentrate time energy and knowledge in one area	3
Easier to keep up on current literature	2
Easier to priorize and organize	2
Allows more in depth and intensive follow-up	1
Become very good at detecting problems and abnormalities in mother and babe	1
Better professional relationships with physicians and hospital	1
DISADVANTAGES	
Repetitive, monotonous, boring	5
Workload unpredictable - sometimes too small waste of costly nursing time	4
Does not use all nursing knowledge and skills therefore other skills lost	3
Client served by many nurses	1
Difficult to provide service through more than one hospital - too small a number of eligible clients	1
Too much travelling time due to small number of nurses working in the program	1
No continuity between pre- and post-natal follow-up	1

In contrast to the hospital nurses, of whom the majority were R.N.'s, nine of the Public Health Nurses listed a B.N. degree as their professional

degree status and the remainder listed a diploma in Public Health Nursing. Two-thirds of these nurses had worked for more than five years in Public Health and the remainder had had between three and five years experience in the area: five had worked the full year in the program, another four had worked for eleven, six, five and two months respectively and two nurses had worked in the program for less than one month. Five of the Public Health Nurses were full-time and seven were part-time employees.

This group of nurses was also asked for comments and suggested changes to the Early Discharge Program. Their responses were restricted to favourable comments with no suggested changes or to suggestions for expansion to other hospitals or for inclusion of patients who are not discharged "early".

Summary and Recommendations

The foregoing has been a description of the outcomes of and reactions to discharging suitable mothers and babies "early" after delivery. A definition of "early" was arrived at within the context of current lengths of stay after delivery at St. Boniface General Hospital. Since there had been a downward trend in postpartum length of stay at St. Boniface Hospital for some years, the intent of the Early Discharge Program was primarily to ensure that mothers (and babies) who voluntarily returned home earlier than "usual", received proper follow-up care. It was also anticipated that provision of additional follow-up care would provide the incentive for a further increase in the number of early postpartum discharges. Averaging over all Winnipeg resident mothers who delivered at St. Boniface in the 1983/84 fiscal year, which was the period of the pilot project, the length

TABLE 67

DISTRIBUTION OF POSTPARTUM LENGTHS OF STAY BY DELIVERY TYPE FOR ALL WINNIPEG RESIDENT DELIVERIES AT ST. BONIFACE IN THE 1982/83 AND 1983/84 FISCAL YEARS (PERCENT)

NUMBER OF DAYS	VAGINAL DELIVERY		CESAREAN SECTION	
	82/83 (N=2068)	83/84 (N=1871)	82/83 (N=404)	83/84 (N=424)
0	0.0	0.1	0.0	0.0
1	1.0	1.6	0.0	0.0
2	13.8	15.6	0.0	0.2
3	54.0	49.6	0.7	0.4
4	19.7	21.1	3.9	10.8
5	6.4	5.8	25.7	27.1
6	2.2	2.6	42.0	37.0
7 - 10	2.3	2.8	23.2	23.1
11+	0.2	0.4	4.2	1.1
Average	3.368	3.413	6.342	5.967

of stay for vaginal deliveries was slightly increased from the previous year and that for cesarean deliveries was slightly decreased. A comparison of the length of stay distribution for the two years is shown in Table 67. The modal length of stay for both delivery types was the same for both years but it is clear that the distribution has shifted towards shorter lengths of stay for cesarean deliveries. For vaginal deliveries there seems to have been a slight shift from the mode in both directions so that there are more shorter and more longer lengths of stay. Compared to all other hospitals in the province, St. Boniface hospital has the shortest length of stay for all vaginal deliveries (Winnipeg residents and non-residents). However the average length of stay for cesarean deliveries at St. Boniface is in the middle of the range of average lengths of stay. This is to be expected since St. Boniface Hospital is known as a high risk centre and consequently more

mothers who fall in the high risk group are referred to this hospital for delivery and they tend to require longer hospitalization.

Clearly discharging mothers and babies "early" after delivery has been demonstrated to be a safe procedure when the criteria for so doing are adhered to faithfully. Also in terms of acceptability by the mothers themselves, the overall level of satisfaction was high. However the health professionals involved in delivering care to the early discharge mothers and babies showed a clear ambivalence regarding benefits of the program for mothers. This was demonstrated by the tendency to see both advantages and disadvantages of early discharge especially for the mothers. The sources of this ambivalence seemed to be related to whether or not mothers would be able to obtain the necessary rest to enable their proper recovery and care of the baby when at home. In this context, it must be remembered that all the data on mothers and babies that has been presented here was derived from those mother/baby pairs who met the criteria, whereas the reactions of the health professionals derived from all mothers and babies who were discharged early whether or not they met the criteria. A few adverse reactions to early discharge can exert a profound influence on the opinions of the health professionals, especially those inclined to a negative opinion in the first place.

Regardless of the reason for this ambivalence on the part of the physicians and nurses, a more formal assessment of the amount of support, that will be available for the mother after she returns home, would be a useful component of the determination of suitability for early discharge, because it would

allow patients' physicians to predict whether mothers could obtain sufficient rest at home. An informal assessment in this area was done by the hospital coordinator prior to discharge however it was often difficult to obtain an accurate assessment at that time.

The criteria for adequate support could take into account the individual situation such as the degree of fatigue the mother is experiencing, whether or not she has other children at home that need care, and the level of physical support available to her at discharge. Ideally, mothers, who are potential candidates for early discharge, should be identified during the prenatal period so that an assessment of support and an evaluation of the domestic circumstances can be made and discussed with the mother at a prenatal home visit. This would allow the mother to prepare herself for a short hospital stay of from one to three days and to make the necessary domestic arrangements in advance of delivery. If the mother goes into hospital expecting to be there longer than one to three days she will likely not have made the necessary plans for going home early.

The issue of insufficient time being available for adequate instruction regarding self and baby care during the short hospital stay was identified as a concern, particularly for first time mothers. One possible remedy for this problem might be to provide more <u>prenatal</u> instruction to mothers regarding postpartum self and baby care. However, as stated earlier, this would require prenatal identification of these mothers and a home visit made at this time. One problem with this approach is that evidence from several research studies shows that information regarding the postpartum period is

not retained if it is given during the prenatal period. This is probably because prenatal concerns centre around the pregnancy and labour and delivery periods. Another way of handling the concern regarding self and baby care instruction might be to develop a specific teaching plan for early discharge mothers, which provides instructional material in the form of written handouts, so that the necessary instruction items can all be covered initially in hospital and then reinforced in the community.

Post-early-discharge complications were not apparent for mothers but there was one area of concern for babies. A few babies had to return to hospital for the treatment of hyperbilirubinemia which was an unfortunate consequence of their being discharged before their bilirubin levels had peaked. Perhaps some thought should be given to the possibility of treating hyperbilirubinemia at home in those infants who have been discharged early. This would avoid the family disruption of having the baby return to hospital for treatment.

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